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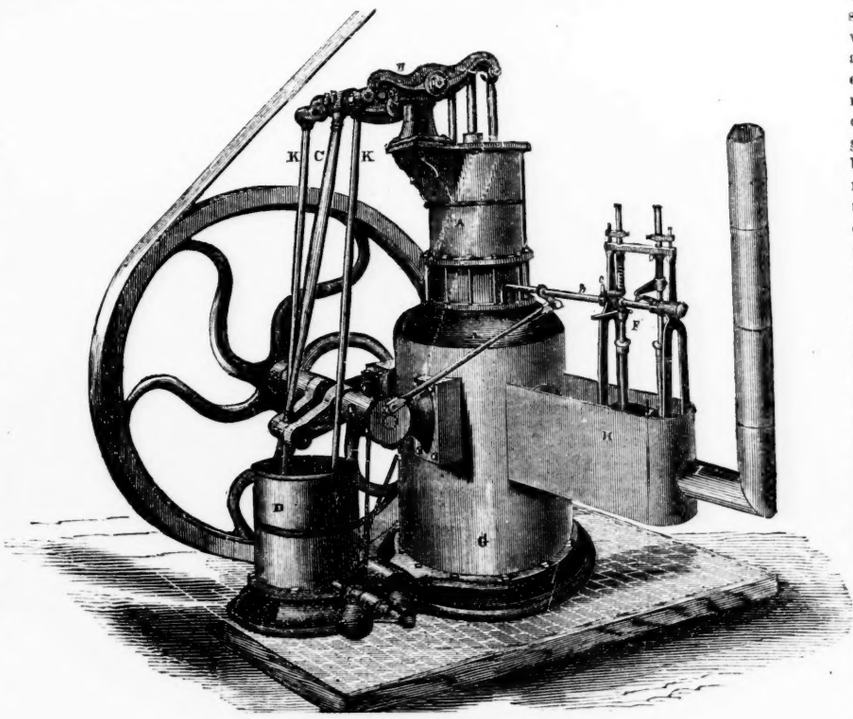
CALORIC ENGINE.

We give the accompanying illustration of Roper's Caloric Engine this week, not because we consider it new to the public eye, but as a part of the series upon which we have been engaged for several months —the value of which is apparent to all. The peculiarity of this engine is that it does not use upon the piston heated air alone, but the *products of combustion* also. The air to supply oxygen for the combustion of anthracite coal is pumped in by pump (D), the carbon is burned rapidly and completely under pressure, and the resulting carbonic acid gas and uncombined nitrogen gas from the air are passed from the generator, or fire box, to the piston. The piston is in the form of a hollow plunger moving in the cylinder (A), so arranged that it is fitted and packed only at the top where there is the least heat. In this arrangement the common difficulty of lubricating a hot cylinder and burning out packings is obviated. The fire-box (G) inside is surrounded with heavy fire-brick and soap-stone, which prevents burning out the iron, also radiation of much heat into the room. The Engine is single-acting. The cut represents a two horse-power engine. The diameter of the pump is 12 inches, that of the piston 16 inches, and the difference in the area of the pump and piston multiplied by the usual pressure, eight pounds to square inch, shows that the engine exerts a two horse-power; yet with good anthracite coal (and no other should be used), good care and a good fire, it can do at least three horse-power. It requires about eight lbs. of hard coal per hour, or about one ton per month. It occupies a space six feet square, and weighs about 3,000 lbs. These engines are simple in construction, and not very liable to get out of repair; duplicates of all parts can be had at any time. They are used when small power is required. We understand that a joint stock company, under the title of "The Neptune Steam & Caloric Engine Works," is being organized for manufacturing these machines. By an agreement which has been entered into, the company will purchase the valuable property known as the "Neptune Iron Works," at the foot of Eighth street, East River, comprising twenty-three lots of ground, with the dock and pier, buildings, machinery and fixtures, of the estimated cost of $150,000. Parties interested, who desire to learn more about these engines, can do so by addressing Messrs. Crosby, Butterfield & Haven, 22 Dey street, N. Y.



ROPER'S HOT AIR AND CALORIC ENGINE.

Curious Results of Deep Mining.

It is a curious fact connected with deep mining, says the *Geelong Advertiser*, that from the hours of twelve at night till three in the morning the disturbing influence in the bowels of the earth obtains increased activity. At that time it is observed by miners that water falls from places where none is observable during the day. The volume in the wheel is perceptibly increased, the atmosphere is charged with gases which often prevent the lights from burning, and small particles of earth and rock are observed to fall from the tops of the drives. Whether this phenomenon is to be attributed to the diurnal motion of the earth or other causes, it is worthy of the attention of the curious.

Indian Coal and Iron.

It is with great satisfaction we are enabled to inform our readers that there is at last some probability that the operations of the Nerbudda Coal and Iron Company will be so increased as to lead to a profitable development of those important minerals, coal and iron, than which nothing, perhaps, could tend more directly to the prosperity and wealth of India. From the report recently submitted to the shareholders of the Great Indian Peninsular Railway, we learn that an agreement has recently been entered into by that railway with the Nerbudda Coal Company for the supply of fuel for their locomotives. The coal mines of that company are situated at Mopani, in the Nerbudda valley, distant about twelve miles from a point on the main line of railway, between Jubbulpore and Bhasawul. The coal obtained from those mines is supposed to be the best in India, and can be supplied to the railway at 25s. per ton, whereas that obtained from England does not cost less than about £3 per ton, including the cost of conveyance, so that by the present management not only will a considerable impetus be given to the coal company's operations, but a great saving in working expenses will accrue to the railway company. By this agreement just concluded, it is proposed that the railway company shall construct, out of their guaranteed capital, a branch to connect the main line of railway with the coal-pits, and the coal company shall supply their coal at fixed rates to the railway company over a period of twenty years, in quantities which it is estimated, will be at least sufficient for working the 337½ miles of railway between Bhasawul and Jubbulpore. By the present arrangement, it is expected that the railway company will save as much in two years by the difference in cost of the coals as will pay for making the branch railway. Another advantage likely to follow upon the above agreement with the Great Indian Peninsular Railway Company is that means will thereby be provided to the Nerbudda Coal Company as will enable them more fully to develop the iron beds of the Nerbudda valley, and thus indirectly lead to the more extensive manufacture of iron in India.—*Engineering.*

An Iron Mountain in Sweden.

Sweden, which has long produced some of the best iron in the world, has also its "iron mountain" as well as America. Indeed, the iron mountain of Sweden is both larger and richer than that of Missouri. Its ore yields 72 per cent. of metallic iron, somewhat higher, we believe, than the American mountain. The first indication which the traveller has of his approach to this mountain is the fact of the unreliability of his compass, which becomes useless for two or three days before reaching it, over the slowly travelled mountain road. Mr. Gladstone, the English statesman, in describing his visit to the locality, says that upon his party arriving at the foot of the mountain, they "walked for hours and hours upon nothing but masses of

iron ore, *perfectly bright, like steel.*" We are inclined to think the distinguished traveller in the above quoted remark has slightly exaggerated what he saw; else the climate there must be so very peculiar that its atmosphere will not exert its usual oxydizing influences upon a metal so sensitive of moisture as iron. The mountain is, no doubt, very similar in appearance to our "Pilot Knob;" it it has the great drawback of being situated in a very high latitude, in Swedish Lapland, some one or two degrees above the head of the Gulf of Bothnia, and just within the Arctic Circle. Measures are being taken, however, to overcome the natural obstacles against the development of this wonderful mineral production, by constructing a railroad to connect it with tide water. In time, no doubt, the Pilot Knob of Sweden will be to the Old World, what the Pilot Knob of Missouri is to the New World. Each can supply its respective continent with all the iron that will be wanted for many centuries to come. Both may be considered as among the great natural wonders of the world.

Anthracite Coal and its Transportation.

The anthracite territory of Pennsylvania, all told, contains 470 square miles. The northern coal field, which is one continuous basin, contains 198 square miles; the southern coal field, which is subdivided into separate basins, contains 272 square miles, 146 of which are drained by the Schuylkill river. From these 470 square miles of anthracite coal territory there are eighteen diverging carrying lines, *eight of which compete for the supply of the New York city market.* The most northern of these eighteen routes is the railroad from Scranton to Great Bend, and thence to western New York and the lakes. Up the North Branch valley there is a canal in use, and a parallel railroad in progress, both leading to western New York and the lakes. From the Lackawanna region the Delaware, Lackawanna and Western Railroad Company, the Delaware and Hudson Canal Company, and the Pennsylvania Coal Company, all have outlets, over different routes, to the Hudson river and New York city. Down the Lehigh valley there is a railroad and a canal in operation, and a third line, a railroad, that next spring will be open for use, making three outlets via the Lehigh, from both coal fields, to both cities—New York and Philadelphia. Down the Schuylkill valley there are two routes, a railroad and a canal, both of which also carry coal to both cities—Philadelphia and New York. Down the Susquehanna valley there are two routes, a railroad and a canal, both of which carry coal to Baltimore. Up the West Branch valley there are two routes, a railroad and a canal, both of which carry coal. Up the Juniata valley there are two routes, a railroad and a canal, both of which carry coal. To all these routes from the anthracite territory should be added the Cumberland Valley Railroad, which distributes coal tonnage between Harrisburg and Hagerstown, and which makes the eighteenth outlet from the coal mines into an encircling market; for anthracite coal finds consumers at all points of the compass, even for special uses, where soft coal abounds. From the mouth of the Lehigh river there are now in operation five coal carrying lines to New York, to wit: The New Jersey Central Railroad; the Belvidere Delaware Railroad; the Morris and Essex Railroad; the Delaware Division Canal; the Morris Canal. These five routes can carry, or be made to carry, many times the quantity of coal hitherto thrown upon them in any one year, from existing connections via the Lehigh and the Lackawanna. —*Philadelphia Mining Register.*

Building on the Sand.

'Tis well to woo, 'tis well to wed,
For so the world hath done,
Since myrtles grew and roses blew,
And morning brought the sun.
But have a care, ye young and fair,
Be sure you pledge with truth;
Be certain that your love will wear
Beyond the days youth!
For if you give not heart for heart,
As well as hand for hand,
You'll find you've played an unwise part.
And "built upon the sand."

'Tis well to save. 'Tis well to have
A goodly store of gold,
And hold enough of shining stuff.
For charity is cold.
But place not all your hopes and trust
On what the deep mine brings;
We cannot live with yellow dust
Unmixed with purer things.
And he who piles up dust alone,
Will often have to stand
Beside his coffer chest and own
He "built upon the sand."

'Tis good to speak in kindly guise,
And sooth where'er you can;
Fair speech should bind the human mind
And love link man to man.
But stay not at the gentle words;
Let deeds with language dwell;
The one who pities starving birds,
Should scatter crumbs as well.
The mercy that is warm and true
Must lend a helping hand,
For those who talk, yet fail to do,
But "build upon the sand."

Mining Summary.

Nevada.

The Comstock.—The Review of the San Francisco Stock Market for the week ending Nov. 24th—which comes to us overland—runs thus: The mining share market since Saturday has been somewhat variable and irregular. Most stocks are stronger, and have been dealt in at enhanced rates, and the general line of transactions in the Board have more or less sympathized with this appreciation. No important developments have been made during the past week, if we except the ascertainment of the continuous deposit of 100 feet of ore from the sixth to the seventh level in the Savage mine. The present activity in the market carries with it a speculative feeling, and the transactions in the Board for the week are largely in excess of a like period for a long time past..... Crown point opened at $900, receded to $800, advanced to $860, then sold at $850*a*875, and at the close $890 per foot is asked. We are informed that at the connection made by the incline at the fourth level, the ore looks very good, and that there is also some improvement in going south. During the week ending Nov. 17th, 597 tons of ore were raised from the mine; the previous week 659 tons. On the 19th inst., the mine produced 103 tons of ore.....Chollar-Potosi sold early in the week at $225, buyer 30, then at $200*a*205, declined to $180*a*187 50, advanced to $207 50 and closed at $200. It is said that the first station drift in the new shaft reveals a body of ore 13 feet wide. Sampled lots from this drift show a large percentage of gold. At a later date the indications in this drift, it is thought, were not so favorable. The Blue Wing Station is said to look quite encouraging. It continues to carry a very large amount of low grade ores. The 700-foot station in the new shaft has been reached, and drifting will soon be commenced. This company sent 694¼ tons of ore to custom mills during the week ending November 18th; the previous week, 553½ tons.....Savage sold at $1,660*a*1,645, jumped to $1,710 and $1,740, then sold at $1,735*a*1,730, improved to $1,760, and closed at $1,775. On the sixth level the southeast face still continues in good ore, and the upper floors are also said to be in fine ore. The second winze from the sixth to the seventh level is completed; it passed through good ore the entire distance of one hundred feet between the two stations. The seventh station produces as good average ore as is obtained in the sixth. In the south mine, Curtis shaft, the ore is said to be more abundant than was expected, but is somewhat inferior to the quality produced where the deposit was narrower. The north drift from the same shaft is being rapidly advanced to connect with winze No. 3 in the seventh level, the latter having gained a depth of eight feet—both drift and winze being in good ore. During the week ending November 17, the two stations in the Curtis shaft yielded 744 tons of ore, and during the same period 1,971 tons of ore were extracted from all parts of the mine, giving an approximate assay value of $85.435—$43 34 per ton - and leaving an estimated profit of $47,623 after deducting all expenses. .....Yellow Jacket was not dealt in to so large an extent as during the previous week, opening at $900, buyer 30, receding to $820, advancing to $910, falling to $885, gradually improving to $935*a*900, and closing at $930. The south mine, it is said, is still producing 125 tons of mill ore per day. On the 15th instant they were 80 feet from the new level. In the north mine they have drifted about 60 feet east, and have still 80 feet to run to reach the ledge. No weekly reports have reached the office in this city since the October balance sheet was rendered, and it is difficult to gain any information in regard to the late appreciation of this stock.....Hale & Norcross continues out of the market. Some ask $2,000 per foot. The yield of ore from this mine, it is said, is fully up to previous months, and the bullion receipts for the present month will be as large as formerly. .....Gould & Curry is inactive; a few feet were sold for $500; at the close we quote it at $525 asked. We learn that the ore in this mine is improving in quality.....Ophir realized $190 per foot early in the week, and then sold at $155*a*160, improved to $190*a* $172½, receded to $165, advanced to $175*a*185, and closed at $170. We learn nothing new in regard to the recent new developments.....Empire mill and mining company sold at $130, and at the close $130 is asked. The yield of bullion from this mine for the present month, it is said, will be equally as large as during the previous month.....Imperial opened at $127, buyer 30, then sold at $124*a*125, and closed at $128. The receipts of bullion up to the 17th aggregated about $20,000. The new shaft has attained a depth of 685 feet. It is said that the ore now extracted from the Alta mine is of a better quality. The Belcher was sold at $110, then at $135*a*125, and at the close $125 is asked.....Confidence was in the market to a larger extent than for some time past, over 100 shares changing hands; selling at $60, improving to $62 50*a*63, and closing yesterday at $61, seller 3. Bullion also changed hands more freely, opening at $15, then selling at $23, receding to $16*a*17, and closing at $17 50. The publication of the delinquent list was postponed till to-day. Overman was quite active, and over 2,000 shares were sold, opening at $40, dropping to $26, then selling at $16, and closing yesterday at $18 75. The expectations of striking the lead in the 450 lb. level have been dissipated. Work has already progressed beyond the point where it was supposed the lead would be found.....Alpha sold at $50 per foot, and Sierra Nevada receded from $2 62½ to $2, and at the close $2 is bid.....The Gold Hill *News* of Nov. 23d says: Yesterday, in passing long among the mines in Gold Hill, we took some notes of that part of Gold Hill known as "Gold Hill Proper." The mines to which we refer, and of which we shall speak, are those lying between the Eclipse and the Challenge. The first mine adjoining the Eclipse is known as the Trench mine, and consists of 20 feet in length of the Comstock ledge. Next to the Trench claim is the Central, claiming 20 feet on the ledge, and belongs to the Empire company. Next is the Plato, claiming 10 feet. Next is the Bowers, claiming 20 feet. Then the Piute, consisting of 20 feet. Then the Winters & Kustal, claiming 30 feet. Then the Consolidated, with 21 feet. The Rice, with 13 feet; and joining on the Challenge on the north is the Logan and Holmes, with 60 feet on the ledge—making a total of 214 feet. These mines do not vary at all in any particular, all being composed on the surface of almost the same character of ore, being a decomposed yellow quartz, as a general thing, yet some hard, white, flinty quartz is found among it. This character of ore continues down to the depth of 250 feet, and to this depth has a large proportion of the pay in gold. The ledge pitches to the west, almost at an angle of 45 degrees, down to the depth of 250 feet, where what is known as the clay wall and the white ledge come in, pitching at almost the same angle to the east. This last-mentioned ledge seems to have entirely changed the course or direction of the red or yellow ledge, taking it with it, or apparently swallowing it up.

Lander.—Charles O. Barker, assessor of Lander county, reported under date of November to the Surveyor-General of Nevada, as follows: Most of the useful minerals are found in this county, but none of them are sought for or mined excepting silver and gold. Salt is found and easily obtained from beds, and large quantities of it are used in the reduction of silver ores. It is delivered at the different mills and in Austin at about $45 per ton. The principal production of silver has been from the more developed mines in and around the city of Austin. Lately many new, large and rich veins have been discovered and prospected in the eastern and south-eastern part of the State, which show evidence of great and lasting wealth. The distance of Central and Eastern Nevada from the coast, the newness and undeveloped condition of the country, and consequent high cost of labor and supplies, and want of capital, have operated adversely to the interests of the miners and caused many failures. As the country becomes more opened and cultivated, labor and materials lower in price, many mines which are now unproductive will be opened and made profitable and occupation and means of good support thereby afforded for a large population. There are erected and in process of erection thirty-four steam hoisting works, varying in motive power from 6 to 30-horse power, and at an average cost of about $6,000 each. There are many other mines worked by horse whims and by hand. There are 24 mills for the reduction of silver ore, of which twenty-two are run by steam and two by water power. They vary from five to twenty stamps each. The whole number of stamps is about 250. Dry crushing and roasting is the general practice in the reduction of ores. About three-fourths of a ton of ore is crushed per stamp in twenty-four hours. It has been found necessary to roast all the ores to obtain a profitable return, which makes the cost of reduction much more than in the western part of the State. The present cost of reduction in custom mills is $45 to $50 per ton. For the nine months ending 30th of September, 1866, there were reduced in this county, as per mining assessment roll, 4,364 tons of ore, which produced the sum of $507,301—averaging in value $116 25 per ton. The deepest mining shaft, which is in the city of Austin, is upwards of 400 feet in depth. There are several other shafts and inclines which reach 300 feet and upwards. The best and most productive mines are those upon which deep shafts and inclines have been sunk. These are the Savage, Great Eastern, Diana, Yankee Blade, Whitlach Yankee Blade, Whitlach Union, Camargo, North River, Timoke, Cortez and some others. Most of them produce ores which average in value $150 and upwards per ton. Lime is produced plentifully and cheaply. Good building stone is abundant. Good bricks are made easily in most parts of the country, and are sold at from $12 to $18 per thousand. Contrary to expectation, most of the lumber used in the erection of mills, hoisting works and buildings of other kinds, has been obtained from our own mountains. Good timber, scantling and boards of white pine are sold in this city at $100 per thousand feet. Some California and Carson lumber is used for finishing and particular work, which is sold from $125 to $175 per thousand feet. The supply of wood continues to be abundant, and the price not exhorbitant. Good wood is sold at the mills and in the city at $9 per cord. The total assessed valuation of property in the county for the year 1866, is upwards of three millions of dollars.

Nye.—The *Reveille* says: We learn from Mr. Jos. Stowe, the Recorder of Nye county, that Langworthy's Knickerbocker mill is now, since the furnaces were rebuilt, regarded as one of the most efficient and complete in the eastern portion of the State. It is supplied with ore from the Great Eastern mine, which, from its great size and its present development, is believed to be sufficient to furnish a couple of 20-stamp mills. The large vein of the Great Eastern yields mineral of different grades, in greater or lesser quantities, which will work from $60 to $200 per ton. The great bulk of the ore is of the lower grade, but that can be reduced in a large mill at a handsome profit. Just now the Great Eastern is the only mine that is being worked in the district, although there is a fair amount of good mining property there, a considerable portion of which has been transferred to agents for sale in the East. The Pioneer mill, which is located in the town of Ione, is likely to be set in motion soon, either to the Reveille, Hot Creek, or Silver Bend districts, or upon ore from the mines of its present district. The latter is the more probable course, as we are informed that negotiations are now pending for the combination of the interests in the mill and certain mines, which, if concluded, will open an unbroken career of prosperity to the company. This will give an impetus to mining operations in Ione, that will result, we believe, in developing some valuable and permanent mines.

Wilson.—This new district, says the Gold Hill *News*, was discovered by Mr. Wilson some four months since, and by him named. The principal ledge of the series is the one first discovered by him, which is said by our informant, who has had sixteen years' experience in the mines on this coast, to be one of the richest mines, as far as prospected, he ever saw. There are quite a number of other companies who are getting good prospects. Among the best are the Mastodon and Himalaya. The formations are stratified. The vein matter is mostly decomposed, and being free from all base metals, is easily extracted. The district has good facilities for extracting the ore, having an abundance of nut-pine timber and any amount of water in all parts of it. The country is being prospected in all directions. Several mills will be erected this fall, when the merits of the district will be fully tested. The deepest shaft in the district at the present time is only fifteen feet, but at that depth the ore is found to be equally rich as on the surface, with a fair prospect of continuing. If these mines continue to pay to a great depth as well as they show on the surface, they will be a great addition to the mineral wealth of the State, besides giving employment to hundreds of miners. These mines are located on East Walker river, and twenty-five miles from Wellington's station, making the whole distance from Gold Hill to Wilson's district 64 miles. The road from Dayton to the mines is almost perfectly level. Any one may make the trip from Gold Hill in less than one day and a half. From a personal knowledge of the country along the Walker river we have no doubt but within a few years it will be second to none in the State. The copper mines of the Walker are the most extensive and richest on the coast.

Silver Bend.—The *Reveille*, of Nov. 28th, says: During the last week some seven tons of ore from the Johnson claim on the Silver Champion ledge in the Silver Bend district, were brought through town and delivered at the Keystone mill for reduction. The pulp assayed at the rate of $162 per ton, and was worked within a small per centage of that figure. This result is good, although it is far inferior to the yield of the three tons from the Murphy & Morrill location on the same ledge, which were worked at the Keystone a few weeks ago, giving the splendid return of nearly $700 per ton. The latter claim is more developed, however, and the mineral was obtained from a greater depth.

Colorado.

GOLDEN CITY, Dec. 3, 1866.

EDITOR JOURNAL OF MINING:—SIR,—I will now give you a description of the copper mines referred to some time ago. They are located some three miles from Golden City, and about one and a-half miles from the valley. Their course is north and south the wall-rock granite. Some of these lodes are of mammoth proportions. One, the Warren, is 35 feet wide, and cropping out for 8,000 feet, showing the grey sulphurets in several places. Others show the blue and green carbonates, and all carrying silver—the lowest by assay bringing $19 20 per ton. The quartz is a dark yellow conglomerate, and very hard. The lodes that run east and west contain iron pyrites, and appear to be rich in copper; but as little work has been done, it is hard to tell their true value. R. L. BRIGHT.

The Denver *News* advertises a lottery scheme by which the Nonpariel mine, etc., is to be disposed of, and endorses it. However, the Denver *Gazette* of Dec. 8th says: "The property of the Nonpariel company may be very good, and no doubt, according to external indications, the prospects are flattering. The reason they came under the strictures of the *Gazette* was owing to the injudicious articles in the *News*, insisting that the company was formed on purpose to secure a working capital, when the prospectus, on the face of it, told quite a different tale. Now the subject has come up again, we must reiterate our opinion that the price paid on the company's property is nearly seven times its marketable value.....The Central City *Register*, Dec. 4, says: The Ophir Gold Mining Co.'s mill contains twenty-four stamps, each 400 lbs. in weight, which are driven by an engine of twenty-five horse power. They are capable of crushing an average of seven cords of ore per week, or 56 tons. The cost of mining and reducing a cord of ore, Mr. Humphrey informs us, is about $115, During the month of October the total number of ounces of gold produced was 470, or an average of 117½ ounces per week. Estimating it at $22 per ounce, the yield would be $10,340 per month, or $2,585 per week. The average yield to the cord is therefore $369 29, on which there is a profit of $254 29. Estimating it in tons, the yield is $46 16; the cost of production $14 38, and the profit $31 98. The yield for two weeks in November gives practically the same figures.....The shaft wheel of the Sterling Company's mine on the Bob Tail broke on Thursday night last. It will require at least two weeks to repair it. In the meantime the company has a large quantity of ore on hand, so that the mill can continue running. Mr. Abbie is removing an engine from the Bobtail company's shaft house to the Barton lode on Quartz Hill. The Gunnell company are crushing an average of fourteen cords of ore per week, and have taken out 408 ounces of gold during the last two weeks. This yield will give about 320 dollars to the cord—$40 to the ton. The Benton company are sinking their new shaft at the rate of six feet per week. It has now attained a depth of fifty-five feet. The vein disclosed is about fourteen inches in width, and shows a fair quality of iron pyrites. The crevice is gradually widening.... The South Park Salt Works, situated about one hundred miles from Central and Denver, have been finely improved within the last few months.....The shipment of gold for the week ending Tuesday, Dec. 4th, was as follows: R. M. National Bank 572 ounces; George T. Clark & Co., 407 ounces; Warren Hussey & Co., 200 ounces. Total, 1,179 ounces, valued at $24,00. This is an increase of 72 ounces over last week. The total November shipment shows an increase of 631 ounces over that of October.....The Eagle Company are running their mill with good results. Mr. Leeper has been very successful with Keith's process, which he has lately erected. The Tennessee mill is paying a good profit. The Knickerbocker company are repairing their dam and mill, and getting ready to begin work early in the spring. They are said to have a very fine lode.....The shaft on the Adaline lode has now reached a depth of forty-five feet The crevice is fully six feet in width from which only three feet of paying matter is taken. The ore is being run in Kimber's stamp mill, and yields $150 to the cord. Arrangements are made for working all winter.....A correspondent writes to the *Gazette* from Central City: "On-dit" has it that the "Consolidated Mining Company" are about resuming work on No. 7, on the Gregory lode, which has been lying idle something over two months. Should this actually be the case, it will give an additional bustle to affairs, as well as employment to at least fifty men. The Black Hawk Co.'s property—No. 2—on this vein has unfolded new charms in the shape of an 8-foot crevice of ore, at a depth of over 400 feet, verifying the argument—in one respect, at least—the deeper the mine, the more extensive and richer the ore. On the east of this, and joining it is the Brigg's property, almost in the center of the gulch, standing still in the "moss of idleness," through some disagreement among the stockholders. This claim is considered one of the best on the whole Gregory lode, and according to all accounts, more clear money has been taken out of it, than any other. The shipments of gold weekly from this property, at the time orders came "to close down," was abcut 150 ounces. Another fact in connection with it must not be omitted, that no "cap" has ever been encountered. True, at times the regular vein of ore has disappeared, and been succeeded by a more inferior looking rock, but none the less productive of the precious metal, and hence the propriety of saying it never capped or pinched, because it always paid uniformly, whether the dark and yellow sulphurets were in sight or not. The men who are superintending the putting up of the Monier process in Nevada, report favorable progress, as well as the pleasing information that a few weeks more will see them under full sail. We would look for a complete revolution in milling, and an increase in value of all good lodes, were we to believe half what we hear concerning this mode of treatment. Its owners claim to save everything, making what copper is contained in the ores foot all expenses, leaving the gold and silver clear profit. What a vision for the lucky owners of a few hundred on a valuable vein.....From the Black Hawk *Journal* we take the following: The Consolidated Gregory and the Pioneer smelting company have been consolidated since the first of the month. .....Mr. Bruce has taken out about $50,000 during the past summer from his claim on the Foote & Simmons, and with the little old water stamp mill of the Holman company. The premium on gold has paid his expenses, so that he has made, in currency, all that he has taken out in gold.....We are pleased to learn of Prof. Alfred Dubois, who is down from the South Park for a short visit to the Monnier Metallurgical works in Nevada, that he has a portion of his mill machinery ready to run. Capt. Plummer is succeeding in working his large arastras without their clogging. He has about 100 ounces of amalgam already taken up, and is running steadily.....The Bobtail drainage company have been having much bad luck. Their pump, and especially the gearing, seems to be too weak for its work. Two large driving pinions have broken, successively. These were brought from thh East, and it was supposed there were no such castings in the country, and that they could not be made. Yesterday, Langford & Co. successively cast a wheel to replace them, weighing near 3,000 lbs., and so proportioned as to have the strength where it is needed. But the company should never have thought of starting it with less than a 10-inch pump and gearing to match. There is a fine crevice in the bottom of the Bobtail for nearly its entire length, and 'tis a pity that something always prevents its being worked to advantage. The pump will now soon be in operation again.....Mr. Meade informs us that the University company has again got a good pay vein on the Gunnell, at a depth of 270 feet, having had 60 of what is called cap. Mr. M. has purchased the Gregory extension engine and hoisting rig of the Black Hawk company, which he is setting up on the Gunnell mine. He is also erecting a whim-house on the Foote & Simmons, the company's claim on which lode is turning out ore for which Mr. Keith offers $250 a cord. Five or six cords of the company's Gunnell ore, crushed in Kimber Bros.' stamp mill in Eureka, yielded at the rate of $300 a cord. Mr. Meade has fitted up the company's 15-stamp mill here in Black Hawk—old Rhodes mill—and is going to start it, Monday. The capital of the University company is $200,000, and Mr. Meade is confident of making it pay a dividend of 15 or 20 per cent. He is managing closely with that end in view, and we doubt not will far more than do it.....We were recently shown by William Gunning a fine piece of argentiferous galena ore, taken from the Ruby lode, Illinois Central district. The shaft from which this specimen was taken, is 88 feet in depth, with a 30-inch crevice, four feet between walls. We understand it is his intention to soon have some of the ore tried by the Lyon process. The result of the test will be given shortly.....In the Autumn Mr. A. R. Brown brought over a few hundred pounds of ore from Red Mountain, had it pulverized at Dodge's, desulphurized at Carpenter's (McIntyre mill) and at Abbott's (Kenyon mill) and amalgamated one hundred pounds of it in Bruce's mill. The amalgamation was imperfect, the quicksilver flouring, but the yield was at the rate of $112 to the ton. Yesterday, Mr. Bruce tried 20 pounds of the same stuff and seems to have gotten better scald on it, for his retort assayed two dwts. of pure gold—at the rate of $160 a ton. It is curious that the assayers can get no gold out of much of the Red Mountain ore, when large tests never fail.

California.

Sierra.—The Downieville *Messenger* of Nov. 10th says: By permission we publish the result of several assays made by Crossman & Cochrane within a few days, from ores of the recently discovered lodes in this vicinity:—San Jo Bar.—Specimens of quartz containing iron pyrites: Gold, $10 15; silver, $1 80. Total per ton, $12 05. Good Hope Co.—Sample of quartz containing iron pyrites: Gold, $650; silver, $7 20. Total per ton, $657 25. Paxton & Co.—Sample of indurate of talc containing iron pyrites: Gold, $50 22; silver, $3 15. Total per ton, $53 37. Ackley & Co.—Sample of quartz and talc containing arsenical pyrites: Gold, $3,074 96; silver, $39. Total per ton, $3,113 96. Redding & Co.—Sample of quartz containing iron pyrites: Gold, $125 46; silver. $3 15. Total per ton, $128 61. Mexican Mine.—Sample of concentrated sulphurets: Gold, $374 26; silver, $6 82. Total per ton, $381 08. American Hill.—Sample of quartz containing iron pyrites: Gold, $75 24; silver, $4 73. Total per ton, $79 97.....In the Mammoth, the work of exploration progresses slowly owing to the stormy weather. Evidences of an extensive and very rich vein are abundant. About two tons of a very high grade of ore is sacked ready for shipping to San Francisco .....An extension of the Page was sold recently for several thousand dollars to parties in town. It prospects finely.

Plumas.—A correspondent writes from Taylorsville: Callahan is about to erect an 8-stamp mill on his claim. The tunnel tapping the lead is 400 feet in length. On the Pennsylvania is erected a 16-stamp mill. This mine is paying a handsome profit on the capital expended in its development. The Indian Valley Company have a good 20-stamp mill near their mine, which is on the same great lead. The Union is also a mine of considerable value. The company have two mills in operation—one of eight and the other of ten stamps. A small outlay of capital would, I firmly believe, make Indian Valley one of the greatest gold-producing regions in the State.....The Quincy *Union* says: One day last week Reed & Co. took out $1,000 from their claims near Cariboo, on the North Fork. It was all coarse gold, varying in weight from 25 cents to $50 .....Messrs. Light & Bro. have purchased Mr. Davis' interest in the old Ward quartz claims at Genesee Valley, and intend putting up a mill in a short time.....There is some excitement in regard to the new diggings in Bear Gulch, near Willow Valley.... The Crescent company are at work taking out some

very rich rock from their claims in Indan Valley. It is expected they will make one of the largest cleanups this week ever made by the company. In the tunnels where they are now at work, the walls and quartz actually sparkle with gold when the light is near.

Placer.—The *Stars and Stripes*, Nov. 7th, says: The Union Mill company are now opening two ledges—the Elizabeth and Croton Hill. We were shown some of the rock from the Elizabeth at a depth of 35 feet, which shows well in sulphurets and free gold. The ledge is about ten inches wide, and works $35 per ton. It is in slate casings, and easily got at. A shaft is now down 75 feet on the Croton Hill, and the lead is a paying one. The company propose erecting a new mill in a short time.....Work is being vigorously driven ahead on the suffrage lead. The shaft is down 50 feet, and the present contract will carry it down 20 feet further. The rock is full of sulphurets, and also shows free gold and galena.

Nevada.—The *Transcript* says: The Ancient Channel Blue Gravel Mining Company have claims to the extent of several miles north of the claim which is now being opened by Stranahan. It is supposed that the great blue cement channel crosses Bear Valley and runs under the ridge, extending as far as Chalk Bluff, beyond which point it has been opened and worked with great profit.....The Monadnock company are now down about two hundred feet with their incline, and are running a tunnel off from the ledge, from which they are taking five tons of excellent rock in about twenty-four hours. They have good backs from which they will soon commence taking quartz. The yield will then be much larger..... The company engaged in running a cut and tunnel for the purpose of getting an outlet from several sets of claims near North Bloomfield, is making excellent progress, and it is expected that at least three sets of claims will be reached in time to commence washing this winter. This tunnel will enable the new company to work their claims to a greater depth than they have ever yet been worked.....New ledges have been located on Rush creek.....Miners will remain all winter in the Meadow Lake district. The Excelsior mill is running, and the rock crushed yielding well.....The late storm so raised Deer creek as to compel miners to abandon their works..... There are sixty-eight quartz mills in the county, which crush 105,900 tons of rock per annum. There are fifty-one ditches and canals, with an aggregate length of 850 miles, and twenty-four turnpike-roads, with an aggregate length of 175 miles.....A considerable amount of "prospecting" for quartz has been done along Wood's ravine, and with success.....The Enterprise company have had five tons of rock worked at Grass Valley recently, which yielded $45 per ton. The Mary Etta mine is now open to a depth of sixty feet, with a drift running north thirty feet, showing a lode from three to five feet wide, and ore as rich as any that was found in the incline. A considerable amount of prospecting is still being done, and the quartz interests are very flattering.....State Geologist Whitney states that the summit of Sugar Loaf is 603 feet above the level of Deer creek, and that the upper hundred feet is composed of lava.

Shasta.—The *Courier*, Nov. 10th, says: The Potosi mill, four stamps, cleaned up a four days' run last week, with a result of $597 76, in free gold. The sulphurets saved from the run will nearly equal in value the amount of the free gold. Immediately above where they now are, the original owners took, from near the surface, rock that averaged $800 per ton in free gold. The hopes of the company run high now because of this prospect.....Accounts from South Fork district continue to be most flattering. The Big Central shaft is down sixty feet, and at that depth shows a ledge ten feet wide, and paying $40 per ton by working test.....Mr. Petty, a large claim holder in the South Fork district, has sold his claim of three hundred feet in the Original Crystal for $2,000 to a gentleman from Grass Valley, a practical miner and mill man. The same gentleman has made other purchases and engagements in the district, which fully justify the assertion that at least one practical man, with money, has confidence in the district.....The Washington mill cleaned up last week, after a month's run. The result was $1,583 23, after melting. Only five stamps were used in this run.....A clean-up of four days' run by the Mammoth mill shows a result of $649 98—the rock averaging about $18 per ton. The prospects in the ledge are very flattering.

Calaveras.—Colonel Bowman, proprietor of the celebrated Pink Smith lead, located on the South Fork of the Mokelumne river, near Mosquito gulch, in Calaveras county, has recently disposed of it for $50,000 in gold coin. A large mill will be immediately erected on the lead by the gentleman who purchased it.

Pennsylvania.

From the Pittsburgh *Mining and Manufacturing Journal* we take the following: The whole of the anthracite coal fields of Pennsylvania arecontained four hundred square miles of territory, and lies within the counties of Schuylkill, Carbon, Luzerne and Wyoming, all adjoining each other among the easternmost foot hills of the Alleghany mountains, and in the valleys of the Lehigh, Schuylkill, and upper Susquehanna rivers. They lie in three masses, the lower or Schuylkill, the middle or Lehigh, and the upper or Wyoming, and all told the coal mines amount to six hundred and forty square acres of land. All the glittering black mineral that make your furnace fires all over New England and New York, and get up steam for your shops and mills—all come from this little section of country, and can and could be found no where else. Extinguish these three or four counties, and all economy of your domestic and mechanical life must receive a shock and undergo a revolution.....The gross product of anthracite coal is now about ten million of tons a year; nearly two is consumed in the neighborhood of the production: the rest goes to market through Philadelphia and adjacent tide-water points and New York. New York and New England are the chief consumers; only a small quantity, comparatively, goes west from the northern coal field by the Erie railroad and its branches; and that is taken for the domestic (furnace) fires of the northwestern cities. Port Richmond, near Philadelphia, the point of deposit of the Reading railroad, which moves nearly half the whole anthracite coal from mine to tide-water, and Elizabethport, near New York, are the chief centres of the coal trade on the coast. At these points it leaves railway and canal, and takes vessels for its northern destinations. The capacity of these coal fields is pretty closely measured; placing the mines over them as thickly as they can be economically worked, and the present production can be just about doubled, that is to say twenty million tons a year. But the supply at this rate can go on for several hundred years.....In a private letter from Pottsville we are informed that a vein of black band iron ore, three feet in thickness, has been discovered in Schuylkill county.....The newspapers in the Venango oil regions are in a miff about oil refining and transporting oil in competition with outside markets.....The editor of the Springfield *Republican* lately visited the Westmoreland coal mines at Latrobe, and, in speaking of their value, throws out some difficulties that the producer of bituminous coal meets with that may be of some interest for us to consider, and may open the eyes of those free trade men who so loudly denounce any scheme for protection to our industrial interests. Of all the United States coals, that of this mine is, perhaps, in most request for manufacturing gas. It is purer and richer in bitumen than most of its rivals; but yet not so valuable in this respect as some of the choicer bituminous coals of Nova Scotia and England, which can also be laid down at Boston and New York, with even the burden of a duty of $1.50 a ton, as low and often lower than the best Pennsylvania coals from over the Alleghanies can be placed in those markets. Yet at the mine the Westmoreland coals cost but $1.75 to $2 a ton, allowing 75 cents a ton to the miner, and only about 50 cents for the coal itself. Transportation swells the cost at New York to $10 a ton, and at Boston to at least a dollar more, under even the most favorable circumstances for shipping. But the price of provincial coals at Boston is but $8.50 to $9, and it is, consequently, much in use by the gas companies of New England, and for the open grates of homes that can indulge the luxury of soft coals. Very little Pennsylvania bituminous coal, therefore, comes farther east than New York, and even there it meets importations that for the first nine months of this year amounted to 381,868 tons, of which 80,000 came from Great Britain. The Pennsylvania coal interest—not the anthracite, for that has no competitor, but the bituminous—therefore demands higher duties on foreign coals, so as to gain access to the eastern markets. By and by, however, with cheaper and increased production, more abundant and lower transportation and a reformed currency with its various good effects, the markets for the Pennsylvania bituminous coals will be widened, and they can meet, at least, the home British coals in any section of our coast country. Before the war the price paid for mining by the Westmoreland company was 31 cents a ton; from this it went up to $1, and now it is down to 75 cents, and with an abundant supply of labor of this sort here and elsewhere in Pennsylvania, the price is likely to go back still more before long. The Westmoreland mines now yield 250,000 tons a year, and in the aggregate have produced two million tons. The miners, chiefly foreigners of various nations, live scattered about among the hills, often at miles distance; and in order to get a part of daylight for their out-door life, they usually gather into the mines for their work at 2 to 3 o'clock in the morning, and come out soon after noon.

Idaho.

The Silver City (Owyhee) *Avalanche*, Nov. 17, says: John A. Post, Internal Revenue Collector, furnishes the following resume of the Owyhee bullion product from January 1st to November 1st, 1866, as assayed by different parties. The figures are a greenback valuation:

January	$ 36,632 81
February	62,874 00
March	15,640 85
April	11,959 25
May	34,570 34
June	46,244 44
July	46,456 26
August	177,704 15
September	293,921 53
October	371,173 43
Total	$1,073,256 78

During the early part of the year, Mr. Post says, there was a great amount of treasure sent out in various shapes of which he could get no account. To the foregoing must still be added the many tons of ruby silver, polybasite, etc., shipped just as it came from the Poorman mine—enough, at a rough estimate, to increase the total to fifteen hundred thousand, at least. It is safe to say that the product of the present year will be $2,000,000, and that of next year go beyond five millions.....The Morning Star mill has been thoroughly overhauled and repaired, and is now tooting its horn as was its wont in days gone by, and it is to be hoped that the parties interested will be justified in keeping it in motion the entire winter—as they feel sanguine they will.....The Cosmos mill is receiving eight or ten large wagon loads of new machinery direct from San Francisco by the Humboldt route—such as new batteries, extra stamps, concentrators, shoes, dies, etc., etc. Poney Jones owns several of the teams. Mr. Ash is also of the party, with several teams, some of which are loaded for merchants of this place. Capt. Musgrave expects to be able to run the Cosmos the entire winter. They have out over six hundred tons of Silver Cord rock ahead of the mill, and ore is on the increase, and its richness exceedingly satisfactory.....We are informed that the owner of the Donovan and Thomas ledge are at work sinking a shaft on the vein, and are already down 40 feet. The vein in the bottom of the shaft is four feet wide, and shows good casings. Several tons of ore are piled up near the top of the shaft, which appears to be rich with the metal.....The same paper of Nov. 24 says: Mr. Samuel Agnew, of New York city, has been sojourning in Silver for several days, and in the meantime taking quartz observations from the War Eagle stand-point. His impressions of the country are favorably inclined towards taking a permanent interest.....The Silver Cord dump pile contains nearly seven hundred tons of the richest quality of ore, and the "indications" improving, if any change. The works embrace about seven hundred feet of tunneling and shafting.....The shaft of the Knickerbocker company, on the south extension of the Morning Star ledge is being sunk to a depth of 150 feet by parties having a contract.....We are informed, by good disinterested authority, that the Vulcan ledge, believed to be an extension—north—of the Silver Cord, is practically developed into one of the best mining interests in Owyhee. The owners are taking out huge quantities of ore of even and satisfactory richness. It is being worked at the Morning Star mill by D. H. Jackson and W. L. Burnham, as mentioned two weeks ago. There are hundreds of apparently worthless locations that will yet speak for War Eagle, as have the Silver Cord and Vulcan.....What is known as the middle tunnel of the Hays & Ray has been made to connect with the Poorman discovery. This tunnel was not quite completed at the time of the compromise, and the work then stopped. The tunnel follows the exact line of the Hays & Ray vein, and is over 450 feet in length, and taps the Poorman discovery 150 feet below the surface—thus draining the latter claim. Mr. Peck informs us that this tunnel shows a ledge of from two to three feet, well defined and containing deposits of ore in character and richness same as the Poorman, and shows the Hays & Ray and Poorman to be one and the same throughout, and that the skeptical will be permitted to examine the situation for themselves, if they wish. It would seem very probable that a tunnel of that size and length would be sufficient to test the matter for all practical purposes. The Hays & Ray was located and the assessments worked some six weeks before anybody discovered or laid claim to what is known as the Poorman. The identity of the two claims being demonstrated by the pick, shovel and drill, the situation can be easily comprehended.....The *Oregonian*, Nov. 9th, says: The steamer Pacific, which sailed on the 7th inst., took to San Francisco 174 cases of Poorman ore. This ore is of a peculiar formation and cannot be successfully worked at the mills in Owyhee. It is very rich—much of it will yield $20,000 per ton. It is expected that the ore will be sent to Swansea, England, as it is thought that the tin and copper contained in it will pay the expense of transportation. It is said that the necessary retorts and reducing apparatus have already been erected in Norwich, Massachusetts. If this be true, the ore will probably be sent there instead of England.

Virginia.

The Lynchburg *News*, Dec. 8th, says: The mineral wealth of that particular section of our State, known as Southwestern Virginia, seams absolutely astounding. Public attention has been of late often directed to the richness, the variety, and the abundance of the mineral deposits in this peculiarly favored region; and more thorough investigation will probably indicate the presence of yet greater and more valuable minerals. In the vicinity of the Salt Works, where the consumption of the forests has been already quite extensive, and where the demands of that manufacture will doubtless entirely exhaust the supply of fuel from that source in the course of a few more years, the attention of explorers has naturally been directed more especially to the discovery of coal, as its importance to the Salt Works is so well understood and ap-

preciated. Indications of the existence of coal deposit at different points in that vicinity has been heretofore clearly established; but subsequent investigations have not revealed the existence of the mineral in such quantities or of such character as to make it practically useful. A vein, however, has recently been found, and explored to such extent as to justify the hope that it may prove an important and valuable addition to the mineral wealth of that region. We paid a visit to the coal vein, which lies in the North Fork of the Holston, some eight or nine miles below the Salt Works. It was discovered in a ravine near the river, and crops out on the hills on each side. Ocular inspection revealed to us a deposit of the mineral varying in thickness from two to four feet, and underlying a stratum of sand stone, with traces of shale intermixed. We are informed by practical colliers that this shale or slate admixture is very common with surface coal, but generally disappears as the vein is worked to greater depth. We saw some of the coal used in a blacksmith's forge, where horse shoes, nails, etc., were successfully manufactured, thus demonstrating that sulphur was not present in such quantity as to impair its value in working iron. It seemed to us to belong to the class of semi-bituminous coals, approximating the anthracite, however, more nearly than the bituminous in its physical properties, its combustion, and external appearance. We were informed by Dr. Legg that indications of what he believed to be the same vein were discoverable three miles above the point at which he had been operating, and consequently nearer the Salt Works by that distance. A company has been formed for working these veins, under the style of John W. Legg & Co., and ceases for ninety-nine years have been made of large tracts of mineral lands in that vicinity. The importance of this discovery, to the Salt Works especially, can scarcely be over-estimated, as it will furnish them at once with abundance of fuel, easily accessible, and well adapted to the purposes desired. Deposits of iron ore in large quantity are known to exist in the same locality, thus enhancing still more the value of the discovery. Indeed, the ruins of a furnace which was years since successfully worked, may be seen on the river about a mile and a half below the coal, and as limestone abounds in all that section, it would seem that nature had provided every appliance needed for the successful production of that invaluable metal.

Michigan.

The Marquette *Mining Journal*, Dec. 1, says: Shipments of iron ore have almost ended for the present season. The propellers Dubuque and Concord are the only boats due.....But little remains to be done on the furnace of the Michigan Iron company. Big things are anticipated when operations are fairly commenced .....Had the fair weather continued but one week or ten days longer the stack of the new Champion furnace would have been completed. They have done a great deal of work here in a short time.....The Ontonagon *Miner*, Dec. 1, says: The last boat of the season left Monday evening. She brought a light cargo, chiefly for the National mine, and took away some 75 tons of rough and ingot copper, all there was on the docks and at the works, except a few tons of black copper. The shipments by her were as follows, viz: National mine, 69 bbls., 67,797 lbs.; 39 masses, 13,060 lbs.; rough copper, 70,857 lbs.; ingot copper, 30 bbls., 49,525 lbs.; Evergreen Bluff, 20,077 lbs.; Knowiton, 6,958 lbs.....At the Seneca mine explorations have been made the past season for this world-renowned Calumet lode, and though they were not, we believe, successful in finding it, they made discoveries of importance to the future of the Seneca.....The shipping season for 1866 has closed, and we shall ere long be able to present our readers with its results. These, so far as products of mineral are concerned, will not vary much from those of last year. Most of the mines in this district were not in a position to materially augment previous results, because the metal markets did not seem to warrant the additional expenditure. The results from some of the most productive stamp lodes in the country for 1865, were such as to shake the confidence of the holders in smaller concerns, hence the past season opened panicly. For this feeling we propose to show, in a future issue, there was no just ground, by proving, as we are abundantly able to do, that a mine situated on a lode 80 to 90 per cent. of which is stamp mineral is a much more costly institution to run at a profit than one where much the largest portion of product is mass and barrel work, and is therefore no criterion by which to judge of the merits of the latter class of mines. Any one who will take the trouble to examine side by side the reports of any two of the prominent mines of the country, situated on these different classes of lodes, will at once see the facts to which we refer. It will thus be found that the mines which have soonest reached dividends and at the least outlay, have been those where the prevailing grades of mineral were masses and barrel work. The past season's operations at all points on the lake have, we think, confirmed previous experience on this point, showing conclusively that reasons drawn from comparison on these different veins, without a close analysis of results are liable to be entirely fallacious. These facts fully established, in addition to the favorable position of most of the Evergreen Range mines, both as to underground openings and territorial limits, must have an important bearing on their productive capacities for 1867. Heretofore some of them have been circumscribed as to territorial limits, and others as to means for development. The Evergreen Bluff, Ogima and Mass have each made important exchanges and acquisitions in these respects. The Evergreen and Ogima have now a continuous length of lodes from which to draw their annual support and on which to base their calculations for the future. They will both have an abundant supply of most promising ground open for active and extended operations next summer, and will be in a position to make it available. The mass will necessarily have to consume most of next year in the erection of a stamp mill and the requisite openings to keep it supplied; meanwhile the mineral from these their mammoth champion lode will be a valuable auxiliary for laying the foundations for a first-class mine. The Caledonia and Flint Steel River will also have valuable connections, important to steady productiveness made before the opening of another season, and be thereby enabled to render a more satisfactory account to shareholders.

Montana.

From the Virginia City *Post*, Nov. 24th, the following items are condensed: On the 18th instant we had the pleasure of gazing upon a brick of pure silver weighing eighty-five pounds, which was produced by the furnace of Professor Steitz, at Argenta. Professor Eaton brought from the same district two small bars of the same metal. The bricks from the Legal Tender lead were sent to Helena on the 19th instant, and will be placed in the First National Bank.....Mr. Corbett, the well-known mining engineer, has just returned to this city, which he left last August. He has been engaged in designing and constructing works for the Boulder Ditch company, at Diamond City, which are of great importance to this rich section. It will require several months to complete them, but everything will be finished before May 20th, 1867. The water will be conveyed from one side of Confederate Gulch to the other through an iron tube seventeen hundred feet in length, fifteen inches in diameter, and twenty-four hundred and twelve inches will be delivered per second. The trestle work that supports this tube will be eighty feet in height, and there will be a vertical pressure of three hundred and thirty-six feet. It is a safe estimate to say that twenty-five hundred miners will be employed upon different bars as soon as this great enterprise is completed.....Under the heading of "Helena Items," we find the following: The newly discovered diggings which we spoke of in our last, have received the name of "Lost Hoarse Gulch," and they prove to be something more than the excitement of vain hopes. Some of the stampeders have returned, having staked claims for themselves and their friends. The gulch is situated about six miles from Uncle Ben's Gulch, and somewhat less than thirty miles from Helena. The ground is tolerably free from large rocks, and of varying depth to the bed rock, easy to work, and with a stream of water running through the gulch. One of the newly returned shows the proceeds of one pan of dirt taken from this gulch—about $3 50 of beautiful gold, none of the particles being smaller than a large pin head, while the largest is about the size of a sugar pea. The claims have been laid over until the 15th of May next.....A real stampede took place from here on the morning of the 15th. Some of the Minnesota boys who came in with Fisk's train struck upon some very rich diggings in the neighborhood of Uncle Ben's Gulch, and came in and gave the wink to their friends. The result was that over one hundred persons, chiefly Minnesotians, left in haste to stake their claims. The diggings are said to be about twelve fee in depth to the bed rock, and to turn out coarse gold and nuggets, weighing from $15 to $100.....El Dorado Bar, situated just across the Missouri, opposite this place, was discovered and named by a party of Californians early last spring, and at that time by its sanguine locators considered to be a decidedly big thing. A city was laid out on paper, or at least, in imagination. The project came to a stand from the same cause which has put the quietus on many of our richest gold fields—want of water. Lately, however, this property, or a great portion of it, has fallen into the hands of William Vantilburg, who proposes, next summer, to bring in water from the Muscleshell creek, about six miles distant. For the purpose of having his ground thoroughly prospected, Vantilburg has leased some 1,200 feet to a party of experienced miners, who have gone to work there, and will continue working, if possible, all winter. We may not unreasonably expect a lively camp at El Dorado next spring.....Correspondence from Salmon River, Nov. 9, states that at Lumbic the miners are very busy packing over their winter's supplies before the roads are blocked by coming snows, which are not far distant.

Arizona.

The Hon. M. Ravena, just from La Paz, Arizona, states that the mining interests of the Territory are looking up. At Williams' Fork the Great Central company have completed their extensive smelting furnace, and ten tons of copper had been smelted before his departure, which fully tested the capacity of the works and gave satisfaction to the company. All the mines at Williams' Fork are doing well; the ore now being obtained from the different companies will hereafter be smelted on the ground, instead of being shipped. The only company now shipping ore is the Planet, and that company will smelt their ore as soon as they have finished shipping what they have already on the banks of the river. Mr. Ravena, on a recent trip from Prescott to La Paz, brought down a gold bar weighing two hundred ounces, the result of a run of Captain Borgert's mill, at Prescott. Mr. R is still prosecuting the work of developing his gold mine, having run a shaft twenty-two hundred feet; the lode is now laid bare for a distance of nine hundred feet, and varies from nine to twenty-one feet in width. This mine is pronounced rich, an abundance of wood and water is close at hand, and it is situated only six miles from La Paz.....A correspondent writes from Fort Mason to the *Alta*: The mineral wealth of this portion of the country is immense, the mines only requiring a proper, well-directed management to render them as productive as any of the much esteemed mines of Mexico. For instance, here are a few known to be exceedingly rich mines, within a circuit of thirty miles about the Post: the San Antonia, Santa Rita, Patagonia, Sierra Colorado, Plumosa, Aravaca, Trowida, besides others whose names are unknown to me, and several within a few miles, called the "Old Furnaces," on the Sonoyta. These mines are, as stated, known to be exceedingly rich, and, properly worked, would prove highly remunerative to their owners. But, as in everything connected with mining, they require judicious management, and the supervision of competent and experienced practical overseers. Most of these mines are now either temporarily abandoned or unworked by their proprietors. In many instances the laborers have been driven off, or so harassed by the Indians, that they went off, and the consequence is that they lie idle and unproductive, simply through want of protection. There is no question about the Apaches being exceedingly troublesome, nor are their attacks and depredations confined to the mines. The stock and grain-raising settlers are annoyed and preyed upon, and will continue to be so as long as military matters and operations continue to be conducted as now within the Territory. Mines of great value are known to exist within the Indian country. Reports made by the few fearless adventurers who have penetrated into that *terra incognita* to the whites confirm the traditions handed down from the Padres, of the great wealth contained within the bosoms of the rugged, Indian-guarded hills. But there they will continue to lay, unprospected and unworked, until a sufficient military force is at hand to protect and assist in protecting the miners required to their proper development.

Minnesota.

A private letter, dated Nov. 10th, from a gentleman, stated by the Lake Superior *Miner* to have seen much of the gold regions of the west, and who has been spending the past three months at Vermillion, runs thus: "Rather more than the usual amount of difficulties, incident to such operations in new and unsettled sections, have attended us, delaying the works somewhat more than I was led to believe would be the case when I last saw you. The Reduction Works are now completed also, a good saw mill, both driven by steam-power. Capacity of the works, three tons per day; saw mill six thousand feet per diem. Results from the gold-bearing veins are very satisfactory, giving yield by ordinary practical mill process of $25 per ton, which is a sufficient guarantee for further and more extensive works. The practical test places the making of profits beyond a doubt as soon as more extensive works can be erected. No doubt immediate steps will be taken to push the work with all possible dispatch. I am now on my way to New York, to report and prepare for further operations—I should like to go by way of your town, but business takes me via St. Paul. Can add, my opinion is that the mineral resources of Northern Minnesota will, in a short time, do for it what the like interest has already done for other populated sections of our country."

Condensed History of Steam.

About 280 years B. C., Hero, of Alexander, formed a toy which exhibited some of the powers of steam, and was moved by its power. A. D. 540. Antheminus, an architect, arranged several cauldrons of water, each covered with the wide bottom of a leathern tube which rose to a narrow top, with pipes extending to the rafters of the adjoining building. A fire was kindled beneath the cauldon, and the house was shaken with the efforts of the steam descending the tubes. This is the first notice of the power of steam recorded. In 1543, June 17th, Brasco de Garay tried a steamboat of 200 tons, with tolerable success, at Barcelona, Spain. It consisted of a cauldron of boiling water, and a moveable wheel on each side of the ship. It was laid aside as impracticable. A present however was made to Garay. In 1659 the first railroad was constructed at Newcastle-on-the-Tyne. The first idea of a steam engine in England was in the Marquis of Worcester's *History of Invention*, A. D. 1663. In 1791 Newer-

man made the first steam engine in England. In 1718 patents were granted to Savory for the first application for the steam engine. In 1764 James Watts made the first perfect steam engine in England. In 1766 Jonathan Hulls first set forth the idea of steam navigation. In 1778 Thomas Thomas first proposed the application in America. In 1781 Marquis Jouffray constructed a steamboat on the Saone. In 1785 two Americans published a work on it. In 1789 William Symington made a voyage in one on the Forth and Clyde Canal. In 1802 this expedition was repeated. In 1782 Ramsey propelled a boat by steam at New York. In 1789 John Fitch of Connecticut navigated a boat by a steam engine on the Delaware. In 1784 Robert Fulton first began to apply his attention to steam. In 1783 Oliver Evans, a native of Philadelphia, constructed a steam engine to travel on a turnpike road. The first steam engine that ever crossed the Atlantic was the *Savannah*, in the month of June, 1810, from Charleston to Liverpool.—*Hunt's Merchants' Magazine.*

GOLD.

COMPANY.	SHARES.	STOCK.	SITUATION OF MINE.	SECRETARY & PLACE OF BUSINESS.
Acadia			Nova Scotia	H. W. Nelson, 24 City Ex., Boston.
Ada Elmore	200,000	$2,000,000	South Boise, Idaho	B. Lawrence. 157 B'way, N. Y.
Amber	300,000	300,000	Greene Co., Penn.	Geo. W. Grove. 276 S. Third, Phil
Albion		300,000	Halifax, Nova Scotia	H. W. Nelson, 24 City Ex., Boston.
Alps	100,000	250,000	Illinois Central Dist., Col.	I. Stanton, Jr., 25 Nassau, N. Y.
Ascot	50,000	5,000,000	Sherbrooke, Canada E.	G. H. Morrison, 17 Nassau, N. Y.
Atlantic				Chas. Barett, 13 Doane, Boston.
Atlatic & Pacific	50,000	5,000,000	Humboldt T., Humbolnt co.	J. N. Sewall, 8 Broad, N. Y.
American	100,000	5,000,000	Gregory Dist.	
American Flag	60,000	600,000	Nevada Dist., Col.	H. Foles, 71 B'way, N. Y.
Astor	200,000	1,000,000	On Comstock Lode	J. Chapman, 71 Broadway, N. Y.
Baltic			Colorado	New York.
Bates & Baxter			Colorado	New York.
Bay State	200,000		Colorado	Lem'l Bangs, Boston.
Benton	100,000	500,000	Colorado	F. W. Capen. 44 Ex. Pl., N. Y.
Black Hawk	50,000	5,000,000	Gilpin co., Col.	D. Littlejohn. 81 John, N. Y.
Beacon		500,000	Halifax co., Nova Scotia	J. B. Post, 20 Ex. Pl., N. Y.
Bobtail	100,000	1,000,000		J. Stanton, Jr., 25 Nassau, N. Y.
Briggs	10,000	1,000,000	Gilpin co., Col.	D. Littlejohn. 81 John, N. Y.
Bradshaw	250,000	1,000,000	Yavapai County, Arizona	O. H. Conover, 219 Dock st., Phil.
Burroughs	100,000	1,000,000		L. Bangs. 22 Pine, N. Y.
Bullion	200,000	1,000,000	Bannock, Montana	69 Liberty, N. Y.
Bullion Consoli.	300,000	300,000	Summit and Clear Creek, Col.	J. P. Whitney, 19 Lindall, Boston
Calvin	200,000	1,000,000	Clear Creek co., Col.	
Canadian				A. Call, 7 Phœnix B'l'g, Boston.
Chem. Gold&S. R			Eldorado Company, Cal.	64 B'way
Church Union	240,000	1,200,000		Jesse G. Pitts, 69 Liberty
Chebucto	100,000	500,000	12 miles from Halifax	J. E. M. Gilley, Boston.
Clarendon		500,000	5 miles from Halifax	H. Doane, 41 State, Boston
Chase	5,000	500,000	Colorado	W. E. Lawton, 81 John, N. Y.
Central Gold M.	20,000	1,000,000	Central City, Col.	L. Bangs. 17 Nassau, N. Y.
Central Mining	200,000	1,000,000	Colorado	46 Exchange Pl., N. Y.
Chandiere	100,000	500,000	5 000 A Famine Riv. C. E.	Wm. B. Fowle, Boston.
Cobden	100,000	1,000,000	Idaho	New York.
Colonial				W. N. Ely, 7 Trav'r B'l'g, Boston.
Colorado Boston			Colorado	R. C. M'Laughlin, 60 State, Bos'n.
Colorado N. Y.			Colorado	12 Pine, N. Y.
Coleman			Colorado	New York.
Columbia	50,000	3,000,000	Austin City, Nevada	10 Pine, N. Y.
Consuelo Gold				54 William.
Consol Gregory	50,000	5,000,000	Gregory Dist., Col.	30 Pine, N. Y.
Cook & Kimball	1,000	150,000	Colorado	W. W. Baldwin. 35 Wm., N. Y.
Copalinshee	250,000	5,000,000	Parke co., Col.	J. C. Stocker, 137 B'way, N. Y.
Corrisannee	100,000	1,000,000	Colorado	New York.
Commonwealth			Nevada	Philadelphia.
Corrydonn	100,000	2,500,000	Gilpin co., Col.	46 Exchange Pl., N. Y.
Continental	20,000	2,000,000	Gregory Dist., Col.	115 Liberty, N. Y.
Central Gold	200,000	1,000,000		L. Bangs, 22 Pine, N. Y.
Dauphin & Colo.	200,000	1,000,000	Colorado	John S. McMullin, 423 Walnut, Pa.
Day & Bushnell	300,000	3,000,000	Colorado	F. Chalmers, Jr., 20 Ex. Pl., N. Y.
e Lery		10,000,000	Chandiere Valley, Canada E.	J. M. Winchell, 72 Cedar, N. Y.
Denver	50,000	1,000,000	Gilpin & Clear Creek, Col.	J. Wadsworth, 61 Cedar, N. Y.
Devonshire				W. Stockbridge. 74 Fr'klin. Bos'n.
Downieville	300,000	300,000	Colorado	J. C. Harriott, 70 Wall. N. Y.
Dorset			Chandiere River, C. E.	F. McJimsey. 59 Wm., N. Y.
Eagle	100,000	1,000,000	Gold Dirt Dist., Col	J. P. Davies, 81 John, N. Y.
East Bannack	100,000	200,000	Bannack City, Montana	J. Callender, 48 Ex. Pl., N. Y.
Eldorado	500,000	2,500,000	San A Dist., 9 miles of Austin	208 S. Fourth, Phila.
Empire Mill & M				O. F. Griffin, San Francisco.
Enriquetta			Arizona	New York.
Esperanza		500,000	Star D., Humboldt co.	117 Broadway, N. Y.
Etna	50,000	500,000	Nevada Dist., Col.	C. W. Bryant, Boston.
Excelsior	30,000	300,000	Central City, Col.	J. Weatherbee, Jr., 11 P. B'g, Bos.
Fairmount	20,000	200,000	Colorado	John P. Harker. 109 N. 6th. Phil.
Famine Falls	100,000	1,000,000		D. L. Dodge, 80 B'way, N. Y.
Garrisons	100,000	5,000,000	Colorado	C. G. Mease, 29 William, N. Y.
Gem	25,000	1,250,000		H. K. Gates, 191 B'way, N. Y.
Georgetown			Colorado	New York.
Gilbert River				C. F. Jackson. 18 Pho'x B'g. Bos'n.
Gilpin				C. W. Galloupe. 76 State, Boston.
Golconda	250,000	5,000,000	Sherbrooke, Canada E	W. H. Adams. 19 Broad, N.Y.
Gold Field				C. B. Cowling. 39 Kilby. Boston.
Gold Rock	5,000	500,000	Central City, Colorado	R. M. Lockwood, 113 Wall, N. Y.
Gold Hill	50,000	500,000	Colorado	W. T. Eustis. Boston.
Gold Mountain	600,000	6,000,000	Clear Creek Co., Colorado	25 Nassau, New York.
Gold Min'g of Col	50,000	5,000,000	Colorado	E. Latham. 23 William. N. Y.
Golden Gate	60,000	600,000	Sum.. High'd&Mill C. D., Mon	J. Morse, Jr., 117 B'way, N. Y.
Gunnel Central			Colorado	70 Broadway. N. Y.
Gunnel Gold	300,000	3,000,000	Colorado	F. E. Roelfson. 78 & 80 B'way. N.Y.
Gregory	20,000	1,000,000	Colorado	Thos. Wildes. 17 William. N. Y.
Granada	50,000	125,000	Colorado	J. Stanton, Jr., 25 Nassau, N. Y.
Great Western	60,000	600,000	Russel Dist., Col.	E. Remeys. 70 Broadway. N. Y.
Gunnel Gold	100,000	1,000,000	Colorado	F. E. Roelofson. 78 B'way. N. Y.
Halifax				A. Case. 7 Phœnix B'l'g. Boston.
Harmony				Demas Barnes, 21 Park Row.
Hemit'ge Ranch	30,000	300,000	El Dorado, Cal.	
Home	80,000	2,000,000	G'ld Dirt Lode, Gilp. co., Col.	J. P. Davies, 81 John, N. Y.
Holman	150,000	300,000	Gilpin co., Col.	J. O'Neill, 24 Nassau, N. Y.
Humboldt	100,000	500,000	Colorado	78 B'way.
Idaho Gold	100,000		Montana	5 Pine, N. Y.
Isaac's Harbor	100,000	500,000	Isaac's Harbor, Nova Scotia	W. F. Shirley, 137 B'way, N. Y.
Isle Royale				44 Ex. Pl.
Kansas Colorado	100,000	1,000,000	Colorado	J. G. Greenlies, 111 B'way. N. Y.
Kent				G. H Wyman. 19 Phe'x B'l'g, Bos
Kip & Buell	100,000	200,000	Colorado	J. C. Harriott. 70 Wall. N. Y.
Knickerbocker	100,000	1,000,000	Colorado	F. Avery, 78 B'way, N. Y.
La Crosse	100,000	$1,000,000	Nevada Dist., Colorado	H Fales. 71 B'way, N. Y.
Liebig	200,000	$1,000,000	Colorado	
Lake Major	12,000	600,000	Nova Scotia	Fred. Franck. 113 Water, N. Y.
Mariposa Gold	100,000	10,000,000	Bear Valley, Cal.	G. W. Farlee. 34 Wall. N. Y.
Mammoth	50,000	500,000	Colorado	J. Jarrett, 41 Liberty. N. Y.
Manhattan	100,000	1,000,000	Colorado	W. R. Lothrop, 172 B'way, N. Y
Massachusetts	250,000	1,200,000	Gilpin co., Col.	W. D. Briggs. 11 Fhe'x B'l'g, Bos
Merchants	30,000	600,000	Alturas co., Idaho	Jas. K. Selleck, 157 B'way, N. Y.
Metropolitan				
Mountain Pride	100,000	1,000,000	B'r C'k, St. Bse., Idaho	29 Pine, N. Y.
Montague	50,000	500,000	near Halifax, Nova Scotia	C. B. Cowling, 39 Kilby, Boston.
Mount Alpine			Griffith Dist., Clear C'k. Col.	J. B. Randol. N. Y.
Mount Vernon	500,000	5,000,000	Mt. V. & Mam'th Dist., Nev.	25 Park Row, N. Y.
Mount Vista	50,000	500,000		J. Chapman. 23 Nassau. N. Y.
Montana	100,000	400,000	Nevada, Ills., Greg'y, Col.	A. L. Guerber, 54 Wm, N. Y
Monte Christo	100,000	2,000,000	White Pine District, Nev.	Thos. Dunlap, 413 Chestnut, Phil
Montezuma	100,000	500,000	Colorado	F. B. Webster. Boston.
Montrose	100,000	1,000,000	Clear Creek co., Col.	C. A. W. sibley. 80 B'way, N. Y
Morning Star	5,000	5,000,000	Owyhee co., Idaho	E. M. Barnum, 137 B'way, N. Y
Mexican Pacific	100,000	10,000,000	Mexico	J. Mackie, 88 Wall. N. Y.
Molones & Stan			Calaveras co	606 Mont, San Francisco
National	300,000	3,000,000	on So. Boulder C'k, Col.	31 School, Boston.
Nevada Star				25 Pine, N. Y.
New England	50,000	150,000	Black Hawk, Col.	J. Weatherbee, Jr., Boston
New Mexico			near SantaFe	
New Gregory				W. A. Kent, 144 State, Boston
New York City	50,000	5,000,000	G'd Canon D't, Land. co. Nev.	10 Pine, N. Y.
New York Dist.	50,000	500,000	Austin, N. Y. Dist., Nevada.	71 B'way, N. Y.
New York of Col	00,000	1,000,000	Colorado	F. E. Roelfson. 74 B'way, N. Y.
N. Y. & Nevada	100,000	1,000,000	Nevada	J. J. Osborn. 30 Pine. N. Y.
N. Y. G Min'g	100,000	1,000,000	Colorado	F. E. Roelofson. 78 & 80 B'way.
N. Y. & Eldor'do	250,000	2,500,000	Nevada	G. H. Munroe. 106 B'way, N. Y.
N. Y. & Idaho			Idaho	180 Chatham, N. Y.
N. Y. & Santa Fe			Nevada	New York.
N.Y. & Owyhee		1,000,000	Owyhee co., Idaho	6 Pine, N. Y.
N. Y. & Oro Fino	10,000	1,000,000	Owyhee co., Idaho	137 Broadway, N. Y.
N. Y. & Reese R.			Nevada	New York.
N. Y. & Renfew				2 Murray. N. Y.
N. Y. & Washoe			Nevada	New York.
North Clear C'k	100,000	1,000,000	Gilpin co., Col.	J. Francis, 80 B'way, N. Y.
N'hStarG&SM'Co	10,000	500,000	Gilpin County Colorado	H.C.Ballard, 88Wash'n st.Chigago
Nova Scotia				Chas. Barrett. 13 Doane, Boston,
N. Y. & Nova Sc	100,000	1,000,000	Tangier, Nova Scotia	Jos. E. Gay, 3 Hanover, N. Y.
National S Min'g		1,500,000	Owyhee co., Idaho	115 B'way. N. Y.
Occidental	5,000	500,000	Nevada & Ills. C. Dist., Col.	100 B'way, N. Y.
Oldham				Chas. Barrett, 13 Doane, Boston,
Ophir	62,500	625,000	on Comstock Lode, Nevada.	Moses A. Hopnock, 45 William.
Pacific	40,000	4,000,000		24 Pine, N. Y.
People's	100,000	5,000,000	Alpine & Sierra cos.	23 Nassau.
Peck				E. R. Sawyer, 144 State. Boston.
Perigo	60,000	3,000,000	Ind. Dist., Gilpin co., Col.	J. W. Stratton, 90 B'way, N. Y.
Pine Mountain	30,000	3,000,000	Pine Mountain Dist., Nev.	F. K. McCully. 157 B'way, N. Y.
Phila. & Color'do	20,000	1,000,000	Central City, Col.	E. M. Clark & Co., Phila.
Phelps & Gilm'r	200,000	1,000,000	Colorado	W. H. Steudevant, 25 Nassau.
Pleasant Valley	125,000	1,250,000	Colorado	J. S. Lyon, 69 Wall. N. Y.
Pontiac	50,000	1,000,000	Ill. Cen. M Dist., Col.	R. H. Rickard, 19 Nassau.
Prescott	100,000	1,000,000	Central Arizona	69 B'way, N. Y.
Quaker City			Ind't D't. G'd D't City, Col.	103 South Third. Phila.
Quartz Hill	40,000	100,000	Nevada Dist., Col.	J. A. Tyler, 29 Wall, N. Y.
Rauche C'k	10,200	1,200,000	Pine Wood Dist., Nevada	18 Broad, N.Y.
Realito		1,600,000	G'd Hill D., Storey co., Nev.	117 B'way, N. Y.
Reese River P'l	100,000	1,000,000	AmadorDist., Landor Co., Nev	Elijah Alliger, 67 Wall. N. Y.
Renfrew				W. Stockbridge, 74 F'klin, Bos'n.
Republic	15,000	1,500,000	Amador D., Lander co., Nev.	67 Exchange Pl., N. Y.
Rocky Mountain	50,000	500,000	Grey & Empire Dists., Col.	E. L. Bolles, 70 B'way, N. Y.
Reciprocity	100,000	1,000,000	Canada East	B. B. Grant, Jr., 71 B'way, N. Y
Scorpion			Virginia City, Nevada	617 Clay, San Francisco.
Sherbrooke	100,000	1,000,000	Sherbrooke, Canada East	F. Schumacker, Cliff, N. Y
Silas Wright	60,000	600,000	Amador D., Lander co., Nev.	18 Wall. N. Y.
Silver State	100,000	500,000	Humb't Starr. Pr. R. D Humb't co., Nevada,	R. S. Miller, 49 William, N. Y.
Silver Wave	300,000	3,000,000	Reese riv., Lander co., Nev.	Emmet Blair, 243 B'way. N. Y.
Smith & P'rmlee	125,000	2,500,000	Colorado	G. A. Lathrop. 4 Broad. N. Y.
Smithfield	100,000	400,000	Gilpin Co., Col.	A. F. Baum 48 Broad st., N. Y.
Spanish		8,000,000	La Plata, Churchill co., Nev.	228 South Third, Phila.
So. Clear C'k			Colorado	Canastota, N. Y.
Starlight Ledge	50,000	500,000	P'ville, El Dorado co.	
Star of Color	200,000	2,000,000	Colorado	J. N. Powers. 22 Pine, N. Y.
Standard	50,000	500,000	Gregory Dist., Col	T. A. Mitchell. 70 B'way, N. Y
Steptoe	20,000	2,000,000	G'd Can., Lander co., Nev.	10 Pine, N. Y.
Sterling City		1,200,000	Colorado	New York.
Stewart	100,000	500,000	Colorado	C. Durham, 31 Exchange, Boston
Suffolk				Carlos Cobb. 22 William, N. Y.
Southard				Wm. Wallace, 11 Doane, Boston.
Stafford				C. E. Jackson. 15 Central. Boston;
Tascher	100,000	1,000,000	Colorado	F. J. Wright, 8 Wall. N. Y.
Texas	50,000	500,000	Black Hawk City, Colorado.	Wm. E. Parish, 155 B'way, N. Y
Trimio			San Antonio, L. Cal.	San Francisco.
Union	240,000	12,000,000	Colorado	F. A. Potts. 110 B'way.
United States	75,000	1,500,000	Colorado	J. P. Stevens. N. Y
University				31 Nassau, N. Y.
Virginia City	250,000	250,000	Nevada	J. B. William. 78 & 80 B'way.
Wauba Yuma	600,000	6,000,000	Arizona	35 William. N. Y.
Waddingham	48,000	1,200,000	Alturas co., Idaho	Jas. K. Selleck, 157 B'way, N.
Waverley				J. Leighton, 97 State, Boston
Windsor Gold M	10,000	100,000	Colorado	25 William. N. Y
Wilson & Cass			Colorado	New York

LEAD.

COMPANY.	SHARES.	STOCK.	SITUATION OF MINE.	SECRETARY & PLACE OF BUSINESS.
Amenia	100,000	$ 500,000	Duchess co., N. Y.	G. Furman, 77 Cedar, N. Y.
Bucks County	10,000	200,000	Bucks co., Pa.	R. R. Sinclair. 53 Ex. Pl., N. Y.
Canada	40,000	250,000	Canada	Alb. Case. 7 Phe'x B'l'g. Boston.
Clute	150,000	550,000	Macomb T. St. Law. co., N. Y.	Bev'l'y S. Merrill, 42 Cedar, N.Y.
Continental	200,000	500,000	Martinsburg, N. Y.	J. Sickles. 57 Ex. Pl., N. Y.
Eastport	100,000	1,000,000	Eastport, Me.	R. Vose. 54 William. N. Y.
Erie	40,000	4,000,000	Orange co., N. Y.	Ogden Gaul. 25 Pine, N. Y.
Hampton	100,000	500,000	Hampshire co., Mass.	C. W. Bryant. Boston.
Jefferson				65 Wall. N. Y.
King's Hill	0,000	50,000		W. L. Haskin, 180 B'way, N. Y.
Lake Superior	200,000	1,000,000	{ Secs. 5 & 36 T., 49 & 50 R., 23 & 29 Marquette co, Mich.	C. L. Mather, N. Y.
Lancaster	50,000	250,000	Lancaster co., Pa.	J. R. Sibley. 35 Pine. N. Y.
Macomb	10,000	550,000	Macomb T. St. Law. co., N. Y.	C. E. Scofield, 42 Cedar, N. Y
Maine	50,000	500,000	Eastport, Me.	A. L. Butler, 54 William, N. Y.
Mineral Point	100,000	500,000	St. Lawrence co., N. Y.	H. W. Warren, 60 City Ex., B stn.
Morgan	100,000	500,000		W. Williams, 42 Cedar, N. Y.
Sanban				40 B'way, N. Y
Mount Hope	80,000	200,000	Mt. Hope, Orange co., N. Y.	W. Williams, 24 Pine. N. Y.
New Hampshire	100,000	500,000	New Hampshire	W. A. Farrar, 71 B'way, N. Y
N. Y. & Boston		1,000,000	Chester co., Pa.	S. M. Cockein, 22 William, N. Y.
Oswegatchie				24 Pine. N. Y.
Owens Lake	50,000	250,000		C. W. Bond. 78 Cedar. N. Y.
Phœnix	50,000	250,000	Columbia Co., N. Y.	G. W. Butler, 54 William, N. Y.
Placentia Bay	200,000	1,000,000	Newfoundland	J. Simpkins. 29 Wall. N. Y.
Ramsay	20,000	500,000	Township Ramsay, C. W.	C. W. Bryant, Boston.
Rochester	200,000	500,000		J. A. Ferguson, 8 Wall. N. Y
Rossie				24 Pine. N. Y.
Rosa Clara	100,000	1,000,000		H. Lathrop, 25 Nassau, N. Y.
St. Clair	100,000	1,000,000		H. B. Hawkins, 25 Nassau, N. Y
St. Joseph	100,000	1,000,000	St. Francis Co., Missouri.	Jas. R. Knapp, 6 Broad, N. Y.
Shawangunk	100,000	500,000	Mt. Hope, Orange co., N. Y.	E. P. Ackerman, 48 Pine, N. Y
Sussex	25,000	625,000	Sparta Town, Sus'x co., N. J.	F. H. Stow. 53 Cedar, N. Y.
Walkill			Orange co., N. Y.	W. A. Scott. 11 Wall, N. Y.
Warren			Warren, Grafton co., N. H.	J. S. Christie. 100 B'way, N Y
White Mountain			New Hampshire	111 B'way, N. Y.

SILVER.

COMPANY.	SHARES.	STOCKS.	LOCATION OF PROPERTY.	SEC'Y AND PLACE OF BUSINESS.
Amazon	25,000	$250,000	Nevada	W. L. Louther, 134 So. 3d, Phil.
Argentine	50,000	250,000	Argentine Dist., Coloradc	D. L. Demmon, 134 State, Boston
Arizona	100,000	10,000,000	22 m W of Tubac, Arizona	J. B. Randol, 25 Nassau, N. Y
Astor	200,000	1,000,000	On Comstock Lode, Nev	J. Chapman, 71 Broadway, N. Y.
Atlantic & Pac.	50,000	1,000,000	Humboldt T, Hum't Co, Nev.	J. N. Sewall, 8 Broad st., N. Y.
Big Smoky	20,000	600,000	Smk'y Hill, Lander Co. Nev.	71 B'way.
Black Eagle	7,000	350,000	Carson, Owyhee co., Idaho	O. D. Gardner, 40 Maiden lane.
Bullion	200,000	1,000,000	Bannock, Montana	55 Liberty street.
Bush	50,000	500,000	Austin City, Nevada	176 Chambers st., N. Y.
Combination	50,000	5,000,000	Nevada	J. W. Route, Jr., 155 B'way, N.Y
Colorado Con			Cedar Hill Nevada	New York.
Columbia	30,000	3,000,000	Austin City, Nevada	J. E. Smith, 10 Pine street, N. Y.
Conn. & Nevada	120,000	1,250,000	Averill, Churchill Co. Nev.	49 Liberty street, N. Y.
Commonwealth	200,000	2,000,000	Gold Hill, Nevada	78 B'way, N. Y.
Cosmos	10,000		Owyhee Co, Idaho	137 Broadway, N. Y.
Del Norte & S'br			Lower California	New York.
Durango	5,000	500,000		W. R. Garrison, 73 W'm st., N.Y.
East Bannock	100,000	200,000	Bannock City, Montana	J. Callender, 49 Ex. P., N. Y.
Empire G. & S.	100,000	10,000,000	Bodie Bluff, Mono	H. R. Gates, 191 Broad'y, N. Y.
Empire and Silver State	20,000	2,000,000	Reese River Dist., Nevada	57 B'way, New York.
Eldorado	500,000	2,500,000	San A 95 m s of Austin, Nev.	208 South Fourth street, Phila.
Essex & Diadem	125,000	2,500,000	Sierra dis, Humboldt C. Nev.	A. R. Wetmore, 81 Vesey st. N.Y.
Franklin			Nevada	Philadelphia.
Gem	200,000	1,250,000		H. K. Gates, 191 B'way, N. Y.
Globe	100,000	500,000	Austin, Nevada	J. W. Brazier, 26 Pine, N. Y.
Good Hope	20,000	1,000,000	40 m S of Austin, Nevada	89 Broadway, N. Y.
Huron			Montana	New York.
Incas	300,000	300,000	Summit co., Colorado	J. P. Whitney, 19 Lindall, Bost.
Knickerb'r and Nevada	20,000	2,000,000	Union Dis, Nye Co, Nev	H. R. Shotwell, 70 Cedar, N. Y.
Lander Hill			Nevada	74 B'way, New York.
Lincoln		1,000,000	Owyhee Co, Idaho	89 Broadway, N. Y.
Lw'r California	40,000	2,000,000	North Part of Lower Cal	55 William street, N. Y.
Madison	30,000	3,000,000	Nevada	W. W. Perkins, 71 Bd'way, N. Y.
Macedon			Nevada	Philadelphia.
Manhattan			Nevada	57 B'way, New York.
Merchants	30,000	600,000	Alturas Co. Idaho	157 Broadway, N. Y.
Metropolitan	15,000	1,500,000	Austin City, Nevada	158 Broadway, N. Y.
Morning Star	5,000	5,000,000	Owyhee County, Idaho	137 Broadway, N. Y.
Mount Vernon	500,000	5,000,000	Mount Vernon & Mammoth District, Nevada	New York.
Mount Vista	50,000	500,000		J. Chapman, 71 Bway, New York.
National	15,000	1,500,000	Owyhee Co, Idaho	115 Broadway, N. Y.
Nevada	100,000	300,000	Mountain Wells, D. Ch. co. Nev	323 Walnut street, Phila.
Nevada	20,000	1,200,000	Nevada	E. L. Bolles, 74 B'way, N. Y.
New Y'k & Ione	20,000	2,000,000	Ione City, Nye Co., Nev	71 Broadway, N. Y.
New York	1,500	1,500,000	Austin, Nevada	S. R. Hutchinson, 80 B'way, N.Y.
New York City	50,000	5,000,000	Gold Can Dist. Lander Co. N.	10 Pine street, New York.
New Y'k Dis't ct	50,000	5,000,000	80 m P'm Austin, N. Y. Dis. Nevada	S. A. Hopkins, 71 Broadway, N Y
New Y'k & Nev	10,000	1,000,000	Nevada	J. J. Osborn, 30 Pine street, N. Y
N. Y. & Owyhee		1,000,000	Owyhee Co. Idaho	6 Pine street, New York.
N.Y. & Oro Fino	10,000	1,000,000	do. do.	137 Broadway, New York.
N. Y. and Silver Peak	20,000	2,000,000	Nye County, Nevada	R. C. Root, 74 Broadway, N. Y.
N Y. & Santa Fe			Nevada	New York.
N. Y. & Washoe			Nevada	New York.
North Am. M'g.			Nevada	Philadelphia.
Ocean Transit		1,500,000	Lower California, Mexico	24 Pine, N. Y.
Ophir			On Comstock Lode, Nev	
Pah Ranagat C'l	50,000	5,000,000	Nevada	26 Pine, N. Y.
People's	100,000	500,000	Alpine & Sierra Counties	8 Pine street, New York.
Phœnix	200,000	2,000,000		48 East 29th street, New York.
Picacho	50,000	2,000,000	Arizona	T. H. Perkins, New York.
Pine Mount'n	30,000	3,000,000	Pine Mount'n Dist. Nev	F. K. McCulley, 160 Bd'way, N. Y.
Pioneer & Inskip	10,000	1,000,000	Buena Vista Dis., Austin, Nev	D. H. Temple, 8 Pine street, N.Y
Prescott	50,000	2,500,000	Arizona	T. H. Perkins, New York.
Presidential	125,000	2,500,000	Austin, Nevada	Wm. Lemmon, 17 Broad, N. Y.
Republic	15,000	1,500,000	Amador. D Lander Co. Nev.	67 Ex. Place, New York.
Revenue Exten.	50,000	500,000	Lander County, Nevada	W. L. Kite, 142 South 4th, Phila.
Rosario & Carmu	5,244	1,480,000	Smaloa, Mexico	San Francisco.
San Antonio	60,000	3,000,000	Arizona	C. Lamson, 21 Nassau st., N. Y.
Seminole	7,000	1,500,000	Unionv.. Humboldt Co.. Nev.	L. G. Wilkin, 119 B'way, N. Y.
Silas Wright	60,000	600,000	Amador. D Lander Co, Nev.	18 Wall street, New York.
Silver Hill	40,000	1,000,000	Nevada	J. C. Hitchcock, 62 B'dway, N.Y
Silver Series		1,000,000	Lander Co., Nevada	W. B. Rogers, 117 B'way, N. Y.
South Boise, T. Co	200,000	2,000,000	Alturas Co., Idaho	A. M. Palmer, 19 Broad st., N. Y
Star Hill	20,000	1,000,000	Nevada	155 B'way.
St'h Cl' Crk			Colorado	Canastota, New York.
Stephenson	500,000	1,000,000	18 m E of Ft. Filmore	A. S. Kellogg, 22 Pine, New York.
Steptoe	20,000	2,000,000	Gold Can. Lander Co. Nev	10 Pine, New York.
Sterling City		1,200,000		New York.
Tarshish	12,000	1,200,000	Toryabee Range, Un. D., Nev	H. S. McCollum, 78 B'way, N Y
Tempest	200,000	1,000,000		L. Bangs, 17 Nassau, N. Y.
Trumfo			San Antonio, Lo'wr Cal	San Francisco.
Toiyabee	50,000	5,000,000	Pine W'd, Mu'tn Dis, Nev	J. M. Brown, 157 B'wy, N. Y.
Union & El D'o.	100,000	1,000,000	Mogul Silver Mu'tn	40 Park Row.
Upper Missouri		100,000	Montana	107 Broadway.
Vedder	21,000	2,100,000	Amador Dist., Nevada	L. G. Bingham, 80 B'way, N.Y
Wamba Yuma	600,000	6,000,000	Arizona	35 William street, New York.
War Eagle	50,000	200,000	Owyhee Co,. Idaho	G. M. Eldridge, 144 S. 4th, Pl.
Washington	22,500	2,250,000	Austin, Nevada	S. R. Hutchinson, 80 B'way, N.Y
White Mountain			New Hampshire	111 Broadway, New York.

COPPER.

COMPANY.	SHARES.	CAPITAL.	SITUATION OF PROPERTY	SEC'Y., AND PLACE OF BUSINESS.
Astor,	20,000	500,000	Michigan,	Pittsburgh.
Adventure,	20,000	1,000,000	Parts of Sections 3a, 36, T. 51, N Range 38 W,	W. H. Smith, 51 Ex. Pl, N. Y.
Etna,	20,000	500,000	1226 A in Secs. 6, 7, 18, T. 58, N R 28, W Keweenaw co. Mich.	B. A. Hoopes, 324 Walnut St., Phil.
Alb'ny & Bost'n,	20,000	1,000,000	Secs 7, 8, 9, 10, 11, T. 55, R. 33	Fred. Beck, 43 City Ex., Boston.
Anita,	20,000	500,000	Del Norte co., California,	8 Wall St., N. Y.
Algomah,	20,000	500,000	W½ S, 30, T. 51, R. 37,	L. W. Clark, Boston.
Allouez,	20,000	500,000	Town 57, R. 32, Sec. 31,	Horatio Bigelow, Boston.
Amy gd'yd'l.,	20,000	500,000	E½ Secs. 16, 21, T. 58, R. 30, NW¼ Sec. 5, T. 57, R. 31, 160 A,	F. H. Womrath, 324 Walnut St., Philadelphia.
Arcadian,	20,000	500,000	NW¼ Sec. 20, T. 57, R. 33, 160 A,	C. P. Dixon, 48 Pine St. N. Y.
Atlas,	20,000	500,000	NE¼ of E½ & NW¼ of NW¼ Sec. 31, T. 57, R. 31,	L. W. Clark, Boston.
Aztec,	20,000	500,000	W½ Sec 31, T. 51, N. of R. 37,	L. W. Clark, Boston.
Bay State,	20,000	500,000	SW¼ Sec. 29, T. 58, R. 31,	L. W. Clark, Boston.
Bohemian,	20,000	500,000	E½ Sec. 31, NW¼ Sec. 32, T. 51, R. 37, W,	R. H. Rickard, 21 Nassau St., N.Y.
Boston,	20,000	500,000	Michigan,	H. W. Warren, 60 City Ex., B'st'n.
Canada,	20,000	500,000	Brome co., Canada East,	H. P. Mount, 3 Hanover St., N. Y.
Calumet,	20,000	500,000	Michigan,	Boston.
Concord,	20,000	500,000	Michigan,	Boston.
Carp Lake, M.,	20,000	500,000	T. 51, N. R. 43, W. S½ of N½ of N. Sec. 14, and E½ Sec. 23, and NE¼ Sec. 23, 40 A,	W. H. Abel, 70 Wall St., N. Y.
Cascade, M.	20,000	500,000	SW¼ Sec. 9, T. 49, N. R. 39, W, in Ontonagon co., Mich.,	G. F. Riley, 35 Wall St., N. Y.
Copper Creek,	1,000	$100,000	Missouri,	H. M. Thompson, Missouri, Mo.
Copper Falls,	20,000	500,000	Sec. 14, T. 58, N. R. 31, W, Keewenah Point,	97 State, Boston.
Copper Harbor,	20,000	500,000	S½ Sec. 10, T. 58, R. 28, 320 A, Keewenah co.,	Fred. Beck, 43 City Ex., Boston.
Copper Creek,	20,000	500,000	Douglas co., Wisconsin,	T. B. Lawson, 71 Broadway, N. Y.
Central,	20,000	500,000	E¼ Sec. 23, T. 58, N. R. 31, W, Strafford, Orange co., Vt.,	J. Stanton, Jr., 25 Nassau, N. Y.
Cornwall,				D. H. Whitney, 17 State St., B'n.
Continental,	200,000	500,000	Martinsburg, New York,	J. Sickles, 50 Ex. Pl., N. Y.
Corinth,	20,000	500,000	Corinth, Orange co., Vermont,	W. A. Cleveland, 191 B'way, N.Y.
Copper Hill,			Wisconsin,	Boston.
Dacotah,	20,000	500,000	Sec. 35, T. 55, R. 34, Portage Lake,	J. M. Cooper, Milk St., Boston.
Delaware,	20,000	500,000		S. M. May, 326 Walnut St., B'st'n.
Dorchester,	20,000	500,000	Michigan,	31 and 32 City Ex., Boston.
Douglas,	20,000	500,000	E½ Sec. 30, T. 55, R. 3,	S. J. Edwards, William St., N. Y.
Dudley,				H. Bigelow 43. City Ex., Boston.
Eagle River,	20,000	500,000	T. 58, R. 31, Secs. 28, 29, 33, 34,	A. Lawson, 70 State St., Boston.
Ely,	00,000	500,000	325 A., Richmond, Canada East,	Ernest Sacchi, 82 B'way, N. Y.
Empire,	20,000	500,000	1798 A., Secs. 1, 2, 11, 12, T. 58, N. R. 28, W. K'w'n co., Mic.,	J. S. McMullin, 423 Walnut, Phil.
Eureka,	20,000	500,000	W½ Sec. 2, T. 49, N. R. 41, W. Ontonagon co.,	H. Shirley, 137 B'way, N. Y.
Evergreen Bluff,	20,000	500,000	NE¼ Sec. 6, T. 50, R. 38,	F. W. Capen, 44 Ex. Pl., N. Y.
Edwards'Copper	20,000	500,000	Michigan,	H. K. Thomas, 12 Wall. N. Y.
Eagle Harbor,	20,000	500,000	Michigan,	51 Ex. Place, New York.
Frue,	20,000	500,000	Michigan,	A. S. Kellogg, 22 Pine st., N. Y
Flint Steel R.,	20,000	500,000	Sec. 11, 12, T. 50, N. R. 39, W,	F. K. McCully, 157 B'way, N.Y.
Forest City,	20,000	500,000	320 A. NE¼ Sec. 36, and SE¼ Sec. 25, T. 51, R. 43,	J. F. Paul, 19 Phœnix Building, Boston.
Franklin,	20,000	500,000	¼ Sec. 24, T. 55, N. R. 31 W.,	C. Emery, 26 Kilby St., Boston.
Franconia,	60,000	300,000	New Hampshire,	J. Hanna, 162 Fulton St., N. Y.
French Creek,	00,000	600,000	Chester co., Pennsylvania,	R. Roberts, 19 Nassau St., N. Y.
Garden City,	20,000	500,000	SW¼ Sec. 60, N. W. Sec. 19, T. 58, N. R. 31 W,	R. H. Howe, Chicago.
Girard,	20,000	500,000	600 A. Sec. 15, T. 58, N. R. 28, W. Keweenaw co., Mich.,	B. A. Hoopes, 324 Walnut, Phil.
Gr'd Portage,	20,000	500,000	SW¼ Sec. 36, R. 34, W,	A. S. Kellogg, 22 Pine St., N. Y.
Great Western,	20,000	500,000	SE¼ Sec. 30, & SW¼ Sec. 29, T. 21, K. 320 A., Ontonagon	J. M. Cooper, 24 Citty Ex., B'st'n.
Hamilton,	20,000	500,000	SE¼ Sec. 35, S½ Sec. 36, T. 50, R. 41, SW½ Sec. 21, R. 20, 14½ A.,	J. B. Townsend, 44 Exchange, N. Y.
Hancock,	20,000	500,000	SW¼ Sec. 26, Tract of Sec. 25, T. 5, R. 34, W.,	Fred. Beck, 43 City Ex., Boston.
Hanover,	20,000	500,000	Michigan,	do. do. do. do.
Hartford,	20,000	500,000	223 A. E½ & SE¼ Sec. 32, SW¼ & W ½ Sec. 33, T. 50, R. 40, W, Michigan,	T. M. Tyng, 61 Cedar St., Boston. 57 Broadway, N. Y.
Henwood,				
Hope,	20,000	500,000	240 acres in T 57, R 32, Kw co.	19 Nassau St., New York.
Humboldt,	20,000	500,000	Sec. 21, T. 58, R, 31, W,	Hor. Bigelow, 43 City Ex., B'st'n.
Huron,	20,000	500,000	Sec. 2, T. 54, R. 34, W,	Hor. Bigelow, 43 City Ex., B'st'n.
Hilton,	20,000	500,000	Michigan,	W. H. Smith, 51 Ex. Place, N. Y.
Indiana Copper,	20,000	500,000	Michigan,	25 Nassau st.
sle Royale,	20,000	1,000,000	NW¼ Sec. 1, T. 54, R. 34, W,	F. W. Chapen, 33 Ex. Pl. Boston.
Keweenaw,	20,000	500,000	Michigan,	F. W. Chapen, 44 Ex. Pl., Boston
Knowlton,	20,000	500,000	SE¼ Sec. 1, W½ of SW¼ Sec. 1, and other lands,	44 Ex. Pl., N. Y.
Lafayette,	20,000	500,000	Secs. 25, 30, 36, T. T. 51, N. R. 43, and 44, W, Ontonagon,	P. C. Blancan, 35 Wall St., N. Y
Lyster,	200,000	$400,000	Township Nelson, Canada East.	H. W. Nelson, 24 City Ex., B'st'n
Lower California	40,000	2,000,000	N. part of Lower California,	55 William St., N. Y.
Madison,	20,000	500,000	Part sec. 18, 19 entire, 20, 31.	Fred. Beck, 43 City Ex., B'st'n.
Merryweather,	20,000	500,000	Secs. 9, 19, T. 48, N. R. 4, W.	I. T. Waters, New York.
Mandan,	20,000	500,000	680 A. Secs. 8, 17, 19, 30, T. 58, N. R. 29, W., Keweenaw co., Min.,	B. A. Hoopes, 324 Walnut, Phil
Manhattan,	20,000	500,000	W½ Sec. 11, NW¼ Sec. 14, T. 58, N. R. 32, W, 360 A.	J. W. Davies, 21 Nassau St., N Y
Mendotta,	100,000	500,000		M. Taylor, 30 Wall St., N. Y.
Mass. M. Co.,	20,000	500,000	SW¼ Sec. 7, T. 50, N.R. 38, W.	J. M. Cooper, Pittsburgh.
Mesnard,	20,000	500,000	NE¼ Sec. 24, T. 55, R. 34, Calaveras co.,	L. Barr, 12 Phœnix B'gs, Boston.
Melones & Stan.				606 Mont St., San Francisco
Minnesota,	20,000	1,000,000	Sec. 15, T. 50, N. R. 39, W,	S. M. Pond, 12 Pine St., N. Y.
Maryland,			Maryland,	Baltimore.
Medora,	20,000	250,000	Michigan,	Pittsburgh.
Michigan,	20,000	300,000	Michigan,	W. H. Smith, 51 Ex. Place, N.Y.
Merrimac.	20,000	500,000	NW¼ Sec. 34, T. 51, R. 38, W. Ontonagon,	J. M. Mills, 284 Pearl St., N. Y.
National,	20,000	300,000	Sec. 16, T. 50, R. 39, W. 1988 A	J. M. Cooper, Pittsburgh.
Nequakett,	20,000	500,000	Sec. 26, T. 51, R. 43, Baltimore,	R. Roberts, 19 Nassau St., N. Y.
New Burra,				W. Bowes, 68 Wall St., N. Y.
New Jersey Con.	100,000	1,000,000	New Jersey.	T. H. Belt, Jr. 23 William St. N.Y
N. Y. & Passaic,	100,000		Harrison, Bergen c.,	F. H. Belt. Jo, do. do.
New Devon,				17 William St., N. Y.
North Western,	20,000	500,000	W½ Secs. 24, 25, 26, E½ Secs. 35, 35, T. 58, N.R. 31.	J. M. Cooper, Boston and Detroit.
North Cliff,	20,000	200,000	Michigan.	Pittsburgh,
Norwich,	20,000	500,000	Secs. 11, 12, T. 40, N.R. 39, W and other lands, 1,300 A.	P. C. Blancan, 35 Wall St., N. Y.
Ogima,	20,000	500,000	NW¼ Sec. 6, T. 50, N.R. 33, W	G. E. Lellingwell, 7 Pine, N. Y
Ontonagon,	20,000	500,000	631 A. Secs. 20, 21, 28, T. 50 N. R. 39, W. Rockland,	G. Hart, 11 Pine Street. N. Y.
Otisville,	100,000	500,000	Otisville, Orange co., N. Y.,	C. Windsor, 60 Wall St., N. Y.
Penn. Manuf'g.,	20,000	1,000,000	4,320 A. Secs. 13, 14, 15, 24,	
Petherick,	20,000	500,000	Michigan,	Boston,
Phenix,	20,000	500,000	Michigan, ½ Secs. 10, 11, 12, 23, 25, T. 58, N. R. 30, W.	Boston, S. M. Day, 326 Walnut St., Phil.
Pewable,	20,000	500,000	W½ Sec. 25, T. 55, N.R. 34, W	C. Emery, 39 State, Boston.
Pitts. & Boston,	20,000	150,000	Ts. 58, 57, N. R. 31, 32, W, 12,485 A.	H. A. Johnston, Pittsburgh.
Pontiac,	20,000	500,000	SE¼ Sec. 13, T. 55, N. R. 31, W	C. Emery, Kilby St., Boston.
Prescott,	100,000	1,000,000	Central Arizona,	69 Broadway, N. Y.
Providence,	20,000	500,000	240 A. in Keweenah co., NW¼ Sec. 10, W½ NW¼ Sec. 10, T. 57, R. 32, W.	J. W. Davis, 21 Nassau St., N. Y.
Phila. & Boston.	20,000	500,000	640 A. Sec. 14, T. 58, N. R. 28, W. Keweenaw co., Mich.	J. S. McMullin, 423 Walnut St., Boston.
Quincy,	20,000	500,000	Sec. 26, T. 54, N. R. 34, W,	W. H. Smith, 51 Ex. Pl., N. Y.
Republic,	8,000	200,000		H. Baldwin, 70 Wall St., N. Y.
Reliance,	20,000	500,000	Secs. 21, 22, 27, T. 58, N. R. 28, W, 10,785 A.	H. K. Thomas, 11 Wall St., N. Y
Rochester,	200,000	500,000		J. A. Ferguson, 8 Wall St., N. Y
Rhode Island,	20,000	500,000	Michigan.	New York,
Ridge,	20,000	500,000	Sec. 35, T. 51, R. 38, W,	51 Exchange Place, N. Y.
Rockland,	20,000	500,000	Sec. 11, T. 59, R. 39,	S. J. W. Barry, 71 B'way, N.Y.
Resolute,	20,000	500,000	1,120 A. Secs. 7, 18, 19, T. 58, N. R. 29, W. Keweenaw co., Mich.,	
St. Mary,	20,000	500,000		F. Beck, 45 City Ex., Boston.
St. Margaret	200,000	1,000,000	Canada,	E. B. Sutton, 43 Pine, N.Y.
Saint Clair,	20,000	500,000	Michigan,	Boston,
Sharon,	20,000	500,000	Ontonagon co., Mich.,	P. C. Blancan, 35 Wall St., N. Y.
Sheldon & Col.,	20,000	500,000	SE¼ Sec. 36, T. 55, R. 34 W,	S. J. Edwards, 22 W'm. St., N. Y
South Side,			SE¼ Sec. 34, T. 55, R. 34, W, T. 58, 59, N. R. 28, 30 W.	H. W. Nelson, Boston.
Societe Fran'se,	10,000			Copper Harbor.
Superior,	20,000	500,000	W½ Sec. 14, T. 59, N.R. 39, W.	S. J. W. Barry, 12 Pine St., N. Y
Toltec Consol.,	20,000	500,000	Secs. 25, 26, R. 59, R. 36, Wisconsin,	H. W. Nelson, Boston.
Ural,				17 William St., N. Y.
Vulcan,	20,000	500,000	1,120 A. Secs. 7, 17, 18, T. 58, N.R. 27, W. Keweenaw co.,	F. K. Womrath, 324 Walnut, Phil
Victoria,	20,000	500,000	Secs. 20, 29, 30, 34, 34, T. 50, R. 39, and other lands,	L. W. Clarke, Boston.
W. Minnesota,	20,000	500,000	Secs. 17, 18, 19, T. 50, N. R. 39, W,	C. T. Howard, Boston.
Wickopee,	100,000	500,000	Massachusetts,	G. A. Sheldon, 12 Pine St., N. Y
Vermont,	100,000	500,000	W. Fairlee, Orange co., Vt.,	191 B'way, N. Y.
Wauia Yuma,	600,000	6,000,000	Arizona,	35 William St., N. Y.
Winthrop,	20,000	500,000	Michigan,	Boston

S, means section, T, to wnship, R range.

AMERICAN
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[ILLUSTRATED.]

GEORGE FRANCIS DAWSON,
EDITOR

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NEW YORK, SATURDAY, DECEMBER 22.

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MORE ABOUT THE GREAT COMSTOCK ADIT.

Some seven months ago we mentioned that the Gould & Curry, Crown Point, Imperial and Savage silver mining companies, had decided to contract with Mr. Sutro of Virginia City, Nevada, for the drainage of their mines by means of his projected adit, which, starting in at the town of Dayton, is to run a distance of four miles to the great Comstock lode, cutting it at a depth of 2,000 feet below the surface, or some 1,400 feet beneath the lowest present workings; and that meetings of other companies to take the matter into consideration were about to be held. The result of such meetings has never reached us, nor are we informed as to whether the companies above-named actually contracted in accordance with their decision. But our attention is again called to the matter by an article in the Gold Hill *News*, which announces the receipt of a letter from Mr. Sutro, written in New York City, in which he is said to be quite sanguine of the ultimate success of his project, and declares that he would soon commence active operations on the ground. It appears that he has conferred with many capitalists here who think favorably of his plan, and are disposed to assist in carrying it out with certain provisos. In a letter addressed to him, Peter Cooper, Moses Taylor, John C. Fremont, C. K. Garrison, Eugene Kelly, William T. Coleman, Duncan, Sherman & Co., and others, say:

We have carefully examined your project for a Draining and Mining Tunnel to the Comstock Lode in the State of Nevada, and consider the same an enterprise which, in our opinion, when carried out, will prove of incalculable benefit to the mines on that lode, and at the same time a source of large revenue to the parties undertaking it. * * * If the mining companies on the Comstock Lode, and the people of Nevada and California, who are familiar with the value of your mines, would evince their confidence in this enterprise, by subscribing a portion of the requisite capital, say four or five hundred thousand dollars, and work on the tunnel is actually commenced, we think you will find it comparatively an easy task to obtain the balance of the funds here.

Here is the whole thing in a nutshell: Our monied men say to the Nevada mining companies, "Start the wheels yourselves, and then we'll help you run the machine." This is what we prognosticated long ago, and we then advised the Comstock mining companies to take hold of the matter themselves and push it through. The cost of this great work is estimated at $5,000,000—a mere bagatelle to these companies, whose aggregated mines are valued at hundreds of millions. We can account in no other manner for their seeming indifference than by supposing that they are afraid of depreciating the quotable value of their stock by deferring or decreasing present dividends, or levying assessments, in order to meet the requisite demands such a work would entail. It is the same old story of "What is the mine worth now?" instead of "What will it be worth when drained to a depth of 2,000 feet?" If they would only look upon this project in the proper light, they would not permit outside capital to come into it; they would do it all themselves. However, as they do not seem to wish to subscribe the whole amount, it is at least presumable that they will guarantee the $500,000 without hesitation or grumbling, particularly when such a man as Peter Cooper—who is always *safe* in his investments—endorses the project, and is willing to do his part. We therefore hope soon to hear that so far as money is concerned, the great Comstock adit is an accomplished fact, as its value to the Comstock mines must prove incalculable.

LOSSES OF GOLD AND SILVER IN COURSE OF REDUCTION.

It is no easy matter to arrive at a correct approximation of the amount of the precious metals that has been extracted from the mineral lands of the United States during the past fifteen or twenty years; how much more difficult to estimate the amount which, during the process of extraction, has been lost! Metallurgists assert that at the present time, with all past experience to govern manipulations of gold and silver bearing rock, there is still lost fully 50 per cent. of all those metals which go through the reduction works. If this is the case *now*, how immense must have been the losses in the first few years of gold and silver mining! Any one who has mined in the Far-West will remember well enough that there is scarcely a river or creek claim but has been worked over and over again, perhaps for a dozen times, always "paying" the worker, and sometimes giving him more at the second or third working than at the first. We remember several instances where this was the case; and with the rude appliances used in the early days of California mining, it would have been strange indeed had the miner left poor "tailings" at the end of his "ton" or "sluices." But with the experiences of nearly two decades, it is rather annoying to think that we are still losing so much. Millmen sometimes boast of working silver ores to within 10 per cent. of assay, but none of the "initiated" believe them. So also with the working of auriferous rocks. Indeed it seems impossible, despite the most strenuous efforts, to avoid immense losses. It was but the other day that a Western contemporary mentioned an experiment that was made at the Pacific Ore Company's works at Grass Valley, Nevada county, California, to give an idea of how much was lost. "A large quantity of quartz containing a considerable amount of sulphurets," says our authority, "was finely pulverized, thrown into a tank and thoroughly saturated with water. The black scum, which will always float for a long time upon water under such conditions, was carefully skimmed off, until an amount which, when dry, weighed three pounds, was accumulated. This material was then submitted to a careful hand process of treatment, and yielded at the rate of $1,200 per ton!" This experiment, it will be observed, was upon the scum of *standing water*. With *running water* there would be infinitely greater loss. If some practicable plan for preventing such waste could be devised, the inventor would be entitled to the gratitude of the nation. Reservoirs or tanks will only do in certain places, and even there will not accomplish much. Where is the Coming Man, who shall show us how to save all our gold and silver? and what is his name?

INDUSTRIAL PARTNERSHIPS.

Owing to the frequency of disagreements between workmen and masters in the iron and other trades of Great Britain, a new relation between labor and capital in that country has of late sprung into existence, by which a share in the profits of the concern is given to every laborer, proportionate to his earnings. This plan has already been tried in many factories, and the results more than justify the favorable anticipations of its advocates. The movement is fast spreading in that country, and we hope it will soon reach this. It is, in our opinion, the only true system by and under which capital and labor must cease their never-ending squabbles and become permanently reconciled. It is, in fact, founded upon the same principles as those which should, and do, to a certain extent, underlie society—the world itself. Self-protection is the root of human action and the highest of all laws, and it is now at last properly asserting itself in these co-operative movements. Capital has heretofore too often endeavored to extort every possible, unfair advantage from labor. Labor, on the other hand, though conquered often, has too often striven to take unfair advantage of capital. With each attack, no matter by whom commenced, the result has been the same, viz.: a deadlock, with great and perhaps about equal loss to both of the combatants. At last they both begin to see the folly of such a cat-and-dog life, and are now trying each to do its best for the other, and with the happiest results.

This system is akin to that called Socialism, which was once held up in Europe as the fomentor of anarchy, terrorism, mob-law, everything, in short, that was irregular and horrible. But within twenty years Europe has so far progressed, that she will soon laugh at the once scare-crow idea, and acknowledge that such Socialism is of the greatest possible benefit to all. We shall glory in the coming time when every coal, iron, gold, silver, copper and tin miner shall own shares of the mine in which he works; when every workman in minerals and metals shall own a proprietary interest therein; when car-drivers and conductors shall find it unnecessary to steal the bread and butter for their families; and when, the whole earth, in short, shall be one grand workshop in which each of those myrids of animated atoms called "man" shall work independently for self and at the same time collectively for all.

Compliments of the Season.

To each of the many readers of the JOURNAL OF MINING we wish a very Merry Christmas, with all the pleasant gifts that jolly Santa Claus may in his good judgment consider them entitled to. But while they sit at their snug, warm home firesides on this

side of the continent, or by the blazing fires of their mining camps on the other, and regale themselves with song, jest and the best of good cheer, we hope that the poor will not be altogether forgotten. "He that giveth unto the poor" saith the Good Book, "lendeth unto the Lord," and "The Lord loveth a cheerful giver." Let us all then give something in accordance with our means, be it ever so little, for thereby we shall lay up "treasures in heaven," comfort others in their weary pilgrimage, and by so doing experience the greatest of all pleasures vouchsafed to mortals.

MEETINGS.

Mount Carbon Coal Company, at 71 Broadway, Dec. 27; Panoche Grande Quicksilver Mining Co., at 70 Wall street, Dec. 27; Fire Proof Iron Tank Storage Co., at 11 Broad street, Jan. 7, '67. La Abra S. M. Co., at 172 Water street, Jan. 8, '67; Deer Park Lead M. Co., at No. 6 Pine street, Dec. 27; Plymouth S. M. Co., at 25 Nassau street, Dec. 31; Consolidation Coal Co. of Maryland, at 71 Broadway, Jan. 16, '67.

DIVIDENDS.

Bullion Consolidated Mining Co., at Farmers Loan and Trust Co. of New York, 26 Exchange Place, 5 per cent., payable Jan. 1, '67; to stockholders of record Dec. 26. (The dividends declared by this company are not from the proceeds of mines being worked, but from the sale of mineral lands.) Philadelphia & Reading R. R., 227 South Fourth street, Philadelphia, 5 per cent. on the preferred and common stock, clear of taxes, payable in cash or common stock at par, at the option of the holder, on and after the 31st inst., to the holders thereof, as they shall stand registered on the books of the company on the 18th inst. The Hale & Norcross Mining Company have declared an extra dividend of $200 per foot.

Scientific Meetings.

AMERICAN INSTITUTE—POLYTECHNIC BRANCH.

SCIENTIFIC MEETING—DISCOVERY OF A DINOSAURUS, ETC.—IMPROVED ARTIFICIAL LEGS—A NEW FEATHERED WHEEL—VAN DER WEDE ON COSMOGENY—NEW THEORIES—NEWTON NOT THE DISCOVERER OF GRAVITATION.

At the meeting of the Polytechnic last Thursday, the Chairman, S. D. Tillman, read some items of scientific news, on the persistence of rays; on the remains of a gigantic dinosaurus found near Barnesboro in the cretaceous green sand of New Jersey, and in length was equal to the megaloscurus (70 feet); on an exploration of Mount Hood, the highest peak in the Cascade range, situate about seventy miles east of Oregon City; on nitrogen in manure and the treatment of sea weed; on the sources of animal fat, and the movement in rowing.

Mr. Joshua Monroe, who was rather inaudible, exhibited some artificial legs which met with the approval of the meeting. A gentleman submitted to the association a new feathered wheel, after which Dr. Van Der Wyde resumed his observations on Cosmogeny. He explained the hypothesis of Laplace on the co-relation of forces, or the theory that no force in nature is ever destroyed. Our first idea of force is derived from motion, but when the motion is stopped the force still exists developed in some other form, as in heat, electricity, galvanism, etc. He held that as matter is eternal and indestructible, so also is force. There are various kinds of motion, vibrations differing not merely in amplitude, velocity, but even in figure, as we learn in the science of acoustice and the theory of the transmission of light. It was his opinion that matter was diffused in space in a nebulous state, but that it was not equally diffused in *quality*, thus we find in the atmosphere of some planets an iron vapor. Neither was it diffused equally in quantity. He believed that gravitation would never have taken place if this diffusion of matter had been homogeneous and equal in quantity. The action of gravitation on this nebulous matter caused the currents and counter-currents, nor merely those of a few thousand miles, such as our Gulf Stream, but those which influenced the motion of the planets, nor alone those which influence the formation of continents, but those also which determine the forms of our suns and stars. In illustration of his theory he explained, by means of diagrams, the beautiful experiment of Plasseau. He combated the view of those savants who hold that the planets have been thrown off from the sun. In his opinion the motion called centrifugal was merely the tendency of bodies to fly off in a straight line. He exhibited a number of instruments constructed to show the action of this power, causing bodies to revolve round their shorter diameter, and become flattened towards the poles. He contended that Newton was not the discoverer of gravitation, as even that philosopher mentions six authors who were acquainted with the existence of such a force. It was Newton's glory to have explained and reduced to a scientific law the theories on this subject. Speaking of the length of the duration of planets, Dr. Van Der Wyde maintained that a planet cannot sustain life long as compared with the length of its own existence. He brought forward a new idea to account for the extreme cold of mountain ranges, on the summits of which, it was his opinion, the sun had greater power than in the valley. He believed that a large quantity of our heat is derived from the earth, and that the mountains have given forth their normal heat. He objected to the explanation of the existence of tropical plants and animals in the arctic regions, by the supposed shifting of the poles. He concluded by reminding his hearers of the remark made by an eminent philosopher, that we ought to be extremely careful in our speculations when we quit the fields of observation and calculation. His theories possibly might be erroneous. If he had afforded subject for reflection, which might lead to the discovery of truth, he would be amply repaid. A vote of thanks was unanimously tendered to Dr. Van Der Wyde for his interesting lecture, delivered at some personal inconvenience. It was also resolved to discuss the subject on the evening of next meeting.

Original Papers.

[WRITTEN FOR THE JOURNAL OF MINING.]

HOW TO MAKE MINING INVESTMENTS PAY.—No. 2.

By M. S. Keies, M. E. and Metallurgist, formerly of Freiberg, Saxony.

In my first paper (see page 90, vol. ii. JOURNAL OF MINING), I made a general statement of the combined causes which have had, heretofore, so disastrous an effect upon the prosecution of mining adventures on this coast, and which may be summed up as owing entirely to inefficient selection, direction and management; a too ready credence given to the statements of persons incompetent or unwilling to lay before the public an exact account of the mines and their belongings; and, in fine, to a want of acquaintance, amongst the public generally, as to what constitutes the elements necessary to a profitable issue of a mining adventure.

I propose in this, my second, paper to submit for your inspection a tabular statement of the examination of the Gold Belt of California, made by Mr. William Ashburner during the prosecution of his duties as a member of the Geological Survey, of this State. Certain columns have been omitted, as containing matters of purely technical importance, for example, "the weight of stamps," "height of fall," "number of blows per minute," etc. Others have been added from the calculations of Mr. Henry Janin, an accomplished mining engineer, whose statements, equally with those of Mr. Ashburner, are worthy of the most entire credence. Such has been the care with which the table has been compiled, that, where reliable returns could not be obtained, the spaces have been left blank. To such as are desirous of studying the table in its entirety, I would refer to the volume on the Geology of the State of California, page 475, appendix A, published under the direction and personal supervision of Prof. Whitney. Since the compilation of the accompanying table, a vast number of mines have been added to the list of paying adventures, not only in the counties mentioned, but also in the counties of Siskiyou, Placer, San Bernadino, Tehama, Tulare, Butte, Shasta, etc. Without further premise, I lay before you a tabular statement of the expenses and profits of some of the mines on the Gold Belt of California:

NAME OF MINE.	Kind of Power.....	No. of Stamps.....	Tons Crushed in 24 hours.....	Cost of Extracting per ton.....	Average Yield per ton.....	Cost of Milling per ton.....	Total Cost Mining and Milling.....	Average Profit per ton.....	Profits per day.....
MARIPOSA.									
Benton.....	water	64	80	3.53	8.98	1.04	4.57	4.41	352.80
Bear, Valley.	steam	8	20	6.00	25.24	3.10	9.14	16.14	322.80
Mt. Ophir...	steam	24	26	6.00	16.94	2.96	9.18	7.78	201.76
Princeton....	steam	12	23	5.43	27.42	3.18	8.61	20.81	478.63
F. TUOLUMNE.									
Union.....	water	20	20	13.00	50.00	3.81	16.81	33.19	663.80
Platt.....	steam	10	8½	5.00	25.36	2.83	7.83	17.53	146 08
Lombardos..	water	8	15	8.00	20.00	1.64	9.64	10.36	155.40
Eureka.....	water	20	40	2.30	12.00	1.03	3.33	8.67	346.80
Confidence..	steam	10	10	1.50	15.00	2.29	3.79	11.21	112.10
Telegraph....	water	10	8	3.00	30.00	2.00	5.00	25.00	200.00
Knox & Co..	water	5	6	6.00	20.00	1.25	7.25	26.75	160.50
CALAVERAS.									
Crystal	steam	12	8	1.50	.....	8.31	9.81	.....	.....
Angels Q.M.C.	steam	16	24	2.00	5.01	2.03	4.03	0.97	23.28
AMADOR.									
Oneida.....	steam	16	16	....	10.50	2.84	....	....	.....
Eureka.....	s & w	40	60	2.50	10.25	1.32	3.82	6.43	385.80
Badger(up'r)	water	16	25	2.50	10.25	0.67	3.17	7.08	177.00
" (lowr)	water	12	20	2.50	10.25	0.78	3.28	6.79	135.40
Herb'rtsville	steam	30	24	4.50	20.00	4.59	9.09	10.91	152.74
Am. Q.M.Co.	steam	20	25	2.93	10.00	1.79	4.72	5.28	132.00
Spring Hill..	steam	31	36	2.00	10.00	1.63	3.63	6.37	229.32
EL DORADO.									
Empire.....	steam	10	12	2.75	10.00	1.49	4.24	5.76	69.12
Union,.....	steam	10	20	....	30.90	2.05	....	....	.....
Tulles.....	water	11	..	5.00	10.00	....	....	....	.....
PLUMAS.									
Eureka.	water	28	..	3.73	15.45	6.27	10.00	5.45	.....
Mammoth...	water	12	10	....	25.00	....	....	....	.....
SIERRA.									
Sierra Buttes	water	24	30	5.87	14.82	1.36	7.23	7.59	227.70
Indep'ndence	water	12	10	5.00	15.00	2.90	7.90	7.10	71.00
NEVADA.									
Nev. Q. M. C	steam	12	11	4.00	17.14	2.66	6.65	10.49	113.39
Gold Hill....	steam	21	35	....	custm	2.50	....	....	.....
Mass. Hill...	steam	16	35	26.00	70.00	2.91	28.91	42.09	1388.97
E'pire, No. 1	steam	..	..	....	5.00	1.39	....	....	.....
" " 2.	steam	6	18	10.00	28.00	1.66	11.66	16.30	293.40
Orleans.	steam	9	8	3.00	.....	3.23	6.23	.....	.....
Allison R'n h	steam	8	17	20.00	80.00	3-60	23.60	56.40	958.80
L'y Franklin	steam	8	22	....	.....	2.05	....	....	.....
First Springs	water	10	8.78	15 00	53.85	2.98	17.98	35.37	282.96

Some of the mines mentioned above have, since 1861, become of less importance; others have largely increased their productive capacity; others, again, have changed owners, who have rebuilt or enlarged their mills. Many new mines have been opened and worked in these counties, and enterprise has embarked large capitals in other counties. The different mines, old and new, have met with varying success; while the average amount of gold produced from the quartz veins has, from year to year, kept on steadily and surely increasing. It will be seen by a careful study of the above table that there is no uniformity in the amount crushed per stamp, nor in the cost of mining and milling. Local peculiarities, the comparative price of labor and fuel, and prudent or inefficient management, are sufficient to account for such variations. Moreover, the cost of extraction from the mine depends upon the size and hardness of the vein, the depth from which the ore is to be hoisted, the greater or less amount of dead-work to be done, and the presence or absence of large amounts of water. The cost of milling also is dependent upon the hardness of the rock, distance of reduction works from the mine, and the kind of power used to drive the stamps and machinery, whether steam or water, the latter being, where not too distant, far cheaper. In a large mill in Amador county, where steam is the motor, during a part of the year, and a water wheel during and for a time after the rainy season, there is found to be a difference of $1400 per month in favor of the water-power. The profits per ton likewise vary, being dependent upon the yield of the ore, as compared with the expenses of extraction and reduction. This point leads us to a consideration of the general characteristics of difference amongst the gold-bearing quartz veins of California. They may be divided into two classes: the one narrow, and comparatively rich; the other broad, and comparatively poor. The cost of extraction from the small veins is proportionately high, while the large veins can furnish a quantity of ore so much greater that the absolute profit from either class may be made to assimilate very materially; and hence the profit from a given mine depends not only upon the richness of the ore, but also upon the amount crushed daily. Making a resumé of the above table, it will be found that

The cost of extraction per ton varies from	$1 50	to	$26.00
" " milling "	0.67	"	8.21
The profits "	0.97	"	56.40
The yield "	5.00	"	80.00

Taking a general average of the cost of mining and

milling throughout the State, we find that, under ordinary circumstances, about $8 per ton will be sufficient to cover all expenses. This average is taken from all the mines from which reliable returns were obtained, including the most unfavorable as well as the most favorable. As an example of the former, we may cite the Allison Ranche and Massachusetts Hill mines, of Nevada county. The two, together, extracted and crused 50 tons per day of 24 hours, at a gross cost of $1,355 23, making the average expenditure $27 10 per ton. On the other hand, as an example of the most favorable, the Benton of Mariposa, the Eureka of Tuolumne and the Eureka of Amador, extracted and crushed, together, 180 tons per day of 24 hours, at a gross cost of $728, thus making the average per ton $4 04. The former mines, in spite of the fact that their average outlay per ton was so high, yielded, and continue to yield, enormous profits. Of the latter the Eureka of Amador county, the property of Mr. Hayward, and which I lately visited, has attained a depth of over 1,000 feet, and, instead of decreasing in average yield, has, on the contrary, paid better and better, until its present average is nearly $30 per ton. All the above estimates are made on the basis of the prices of 1861, since which time prices have materially fallen, and many improvements have been made in mills and methods of mining. The only items which may, in certain localities, have become of greater cost are the price of fuel and expenditure for hoisting from lower levels.

Our quartz interests are every day becoming of greater magnitude and importance. The ease with which they can be reached, the perfection to which the art of reduction has been carried, and the exceedingly low minimum of yield necessary for a profitable working, as compared with the more distant mining fields, make them well worthy the attention of capitalists. Ten dollars per ton, within 200 miles of San Francisco, leaves a margin for a fair profit; whereas each additional mile of distance from that centre necessitates, under present circumstances, a higher absolute yield in order to return a like proportional profit. Another source of wealth from our gold fields is yet to be derived from a thorough concentration and manipulation of the sulphurets, of which all our veins contain a greater or less percentage, varying in value from a few dollars to many hundreds per ton. No reduction works, at least as far as I am aware, have as yet undertaken thoroughly to collect and work the sulphurets. The mine owners are generally content to sell such as they save to private parties, at prices varying from $100 to $300 per ton of 2,000 lbs.

All the above calculations are made on the basis of positive workings. They speak the irrefragable logic of facts. I trust they will be found a sufficient refutation of any doubts which may exist concerning the profitableness of mining, at least in the State of California.

[WRITTEN FOR THE JOURNAL OF MINING.]

THE ELECTRO-POSITIVE METALS—No. 3.

SODIUM—ITS PREPARATION.

By JOSEPH HIRSH, Ph. Dr.

The proportions in which Deville employs the materials mentioned, are the following:

Dry Carbonate of Soda	30 parts.
Coal	13 "
Chalk	2 "

The materials are pounded, repeatedly sifted, and mixed intimately. The mixture should not be left standing for a long time, to prevent the access of moisture. For economy of space it is advantageous to calcine the mixture before introducing it into the iron cylinders for distillation. The mass thereby grows more compact, rendering the introduction of a larger quantity into the still at a time possible. This calcination may economically be performed by the waste heat of some furnace. The first of the substances mentioned, the dry carbonate of soda, must, according to Deville, be prepared by calcination of the crystallized carbonate Na. O. CO_2+10 HO, as the carbonate, produced by evaporation and direct calcination of the lye in the manufacture of commercial soda, gives only when used in this case a mixture which fuses and obstructs the disengagement of gas.

This statement is somewhat doubted by Messrs. Tissier, who say that they can use the common soda to as good advantage as the crystals, and that the fusion was only due to the want of proportion between the soda and carbonaceous matter. By regulating the latter they can prevent this fusion, even without the use of chalk. When the crystals are used, they ought to be dried completely, pounded, and mixed with a slight excess of charcoal.

The action of the chalk is confined simply to the dilution of the mixture of coal and soda, by the preservation of its pasty condition.

For experiments on a small scale, the iron cylinder may be replaced by a mercury bottle. The proportion of material suggested in this case is:

Dry Carbonate of Soda	717 parts.
Charcoal	175 "
Chalk	108 "

The receiver of the metal exerts great influence upon the progress of the process. Deville makes his receiver of two plates of iron one-half to one-eighth of an inch thick, of which one has its edges turned up, the other resting flat upon it, except at one end, where the two plates are united to a cylindrical neck, generally one inch in diameter internally. The two portions joined form a square box, having a cylindrical neck. The back part of this box is sometimes left completely open, when the condensed sodium will flow from it continually. Occasionally this part of the box is also closed, merely a small opening being left at its top, through which the metal will flow out as soon as the receiver has run full. Sometimes two apertures are left, the lower one of which discharges the condensed metal, while through the upper one the gases escape. The two plates of the condensor may be fastened together permanently, or simply held together by clamps.

At the beginning of the operation great quantities of yellow gas are evolved, and are permitted to escape. Occasionally a cold iron rod is thrust into the still and withdrawn again at once. If this is covered with minute particles of sodium, the receiver is connected with the retort. Those particles of sodium take fire on contact with the air. The receiving pan, filled with petroleum, ought to be provided with a cover, which may be put on in case the oil should ignite. A closed receiver employed is completely filled with the metal before it is replaced by another receiver.

The reduction of the sodium and its distillation in this case, takes place almost at the temperature used for the reduction of zinc, although a higher temperature not only accellerates the process but also produces a larger yield. According to Messrs. Tissier, the best temperature is about the melting point of magnetic oxide of iron, varying though somewhat with the quality of the carbonate of soda employed, and with the composition of the mixture.

[TO BE CONTINUED.]

MARKET REVIEW.

FRIDAY EVENING.

The following were the quotations of mining stocks to-day:

	Bid.	Ask'd.
Albin	$1 50	2 50
Alpine	1 30	2 25
American Flag	1 25	1 75
Atlantic & Pacific	3 75	4 50
Ayres Mill & Min	....	5 00
Bates & Baxter Gold	1 75	1 90
Benton Gold	1 55	1 50
Bobtail Gold	....	3 00
Boscobel Silver	60	70
Bullion Con. Gold	....	3 00
Burroughs Gold	37	40
Church Union Gold	....	2 50
Crozier Gold	....	50
Columbian Gld. & Sil.	....	1 90
Consol. Colorado	10	....
Consol. Gregory	10 50	10 60
Corydon	3 75	3 90
Downieville Gold	9	13
First National	4 10	4 25
Gunnell Gold	85	90
Hibbard G. & C.	$ 90	1 05
Holman	21	25
Hope Gold	80	1 00
Keystone Silver	8	9
Kipp & Buell Gold	85	1 05
La Crosse Gold	1 00	1 50
Liebig	....	1 00
Liberty Gold	7	10
Montana Gold	....	55
Moutauk	....	70
New York	1 35	1 50
Nye Gold	10	11
Ohio & Col. G. & S.	....	60
Pah Ran. G. & C. S.	2 60	2 66
Peep. G. & S. of Cal.	1 56	1 85
Quartz Hill	3 65	3 70
Rocky Mountain G.	1 75	2 20
Symonds Fork Gold	....	1 75
Smith & Parmalee G.	7 55	7 75
Texas Gold	10	20

The following were the principal sales:

500	Boscobel Silver		65	500	Boscobel Silver		70
100	Con. Greg. Gold	10	20	200	Con. Greg. Gold	10	75
100	do	10	25	500	do	$30 10	90
100	do	$3 10	30	500	do	11	00
100	do	b30 10	35	100	do	$3 11	00
100	do	$3 10	50	200	do	11	00
100	do	b30 10	55	200	do	$3 11	00
100	do	10	35	100	do	10	95
100	do	$3 10	45	100	do	$3 10	90
300	do	10	50	100	do	$3 10	85
100	do	b30 10	75	100	do	10	85
100	Corydon	b30	3 90	100	do	$3 10	80
100	do	$3	2 75	200	do	10	80
2000	Liberty Gold		8	500	do	10	70
3000	do		7	200	do	$3 10	70
100	Montauk Gold		79	100	do	$30 10	70
500	Oak Hill		25	200	do	10	75
200	Pah Rana, Gen	b3 2	65	500	do	10	70
100	do	2	60	500	do	$3 10	60
200	do	$3 2	60	500	do	b3 10	70
100	Rocky Mountain Gold	2	00	100	do	10	75
100	Smith & Parmalee	7	75	500	Keystone Silver	b3	9
100	Long Island Peat	b5 3	65	1000	New York Gold		1 40
200	do	b5 3	50	100	Corydon	$3	3 75
500	Quartz Hill	3	65	1000	Nye Gold		11
200	do	3	60	100	Quartz Hill	$3	3 60
30	Adams Express	62	00	100	do	$3	8 55
	SECOND CALL.			300	do		3 50
500	Ayers' M. & M'g.	$10 4	65	100	Smith & Parmalee		7 45
500	do	$10 4	60	500	Atlantic & Pacific		4 00

Copper Stocks.—There was an improvement in the demand for Canada Copper this week, 50c. were offered for it, 60c. were offered for Davidson, but 70c. were asked.

	OFFERED.	ASKED.
Central Copper	....	10 40
Hilton Copper	1 00	.....
Indiana Copper	....	4 00
Mendota Copper	....	3 00

Lead Stocks.—Tudor Lead could be sold at $2 85. For Wallkill $1 31 was offered, $1 38 was demanded.

Miscellaneous Stocks.—Wallace Nickel could be sold at $3.

Petroleum Stocks.—The following were the quotations to-day:

	Offered.	Asked.
Bennehoff Run	$3 75	$5 00
Buchanan Farm	18	22
Central	1 14	1 18
Excelsior	..	25
First National	....	10
Manhattan	10	20
New York and Alleghany	....	5 50
New York and Newark	....	12
N Y., Phil. & Baltimore	2	5
Pit Hole Creek	75	1 00
Rynd Farm	15	20
Shade River	....	10
United Pet. Farms	10	20
United States	4 50	4 75
Adams Ex	60	62¼
American	75	76
United States	....	69
Wells, F. & Company	60	80
Russell File	....	5 00

Coal Stocks.—Cumberland was quoted at 65½@67½.

Government Stocks are moderately firm at lower rates.

	Offered.	Asked.
U S. 6's, '81 coupons	111¼	....
5.20's, '62	106⅝	....
5.20's, '65	105⅜	....
10.40's	....	99¾
7.30's, 1st series	105	
7.30's, 2d series	....	105

Foreign Exchange is dull. Bills at sixty days on London are quoted at 108¾@109 for commercial; 109@109¼ for bankers'; do. at short sight, 119½@110¼; Paris at sixty days, 5.17½@5.15; do. at short sight, 5.13¾@5.11¼; Antwerp, 5.18¾@5.15; Swiss, 5.17½@5.15; Hamburg, 36¾@36⅝; Amsterdam, 41¼@41⅛; Frankfort, 41¼@41⅛; Bremen, 78¾@79; Prussian thalers, 72@72¼.

Gold was 134 at 3 P. M.

Copper.—There were no large sales this week; at 26 many would have purchased largely. Much depression exists in this, as well as in every other branch of business.

Iron.—Rather quiet, not much doing. Swedish sold at 170; common went at 105; refined brought 115.

Steel.—Not much doing. The holiday season, the close of the year, and an anxiety for safe transactions prevented general business. Best English cast steel was offered at 22; extra at 23½. Round machinery cast steel 15½.

Tin.—Business rather firm at prices quoted. Not much doing.

Lead.—Quiet; $6 75 was the general price.

Spelter.—Very moderate; no large transactions.

Zinc.—Dull; exhibiting a tendency towards the lower quotations of last week.

Petroleum.—Is dull. We quote crude 40@47 gr. in bulk, 13¼@13½ cts.; do. in barrels, at 20@21. Refined, in bond, 110 deg. test, light straw, 25@26c.; light straw to white, 26@27c.; prime light straw to white, 29@29½c.; standard white, 31c.; do. prime white, 32½.

Gunpowder.—Blasting (A), per keg of 25 lbs, $5; Mining, $5.50; Rifle, $7.50.

Quicksilver.—Still quoted at 85@90. Very little business done.

THE COAL TRADE.

FRIDAY EVENING, Dec. 21, 1866.

Jack Frost holds supreme command, and has seen fit to close our several avenues of canal navigation. All branches of industry are more or less prostrated, but none more so than the Coal trade. In the several Coal districts all operations have ceased, and a long, dreary, desolate and trying winter is before the minor. Hundreds of men have thus been deprived of a livelihood, and much suffering will occur. We appeal to our Coal dealers and shippers to step forward, and out of their abundance help these poor men. If not done from worthier motives, policy alone should dictate the propriety of giving them assistance, for without it they must leave the Coal districts for some more remunerative region, or if unable to do that they may starve to death, poor fellows, and in either case—looking at it in the cold, calculating, almost devilish view of *policy*—miners' wages must rise next Spring, and it will be difficult to get Coal at almost any price. We shall be glad to hear of an organization to relieve such coal miners as are likely to become destitute during the current winter. Some of them may not need assistance, but many thoughtless ones neglected to "lay up for a rainy day," and will now bitterly rue it. In some of the districts the taking out of metalliferous ores is receiving some attention, but this will relieve but a small number of the many. Will the wealthy dealer and shipper, as he draws close to his bright fire and enjoys the profits of his labor, remember the needy? Subscriptions for des-

titute miners sent into this office will be acknowledged and forwarded to responsible distributing agents.

Wholesale.—NEW YORK.—The market is quiet, and very few transactions are reported. Dealers are losing heavily from forced sales, and prices rule very low. The past few days of cold weather has stimulated matters somewhat.

PHILADELPHIA.—Our correspondent reports market very dull, and but few sales. Very little Coal is arriving, and many dealers have buried the trade for 1866 reverently and decently.

BOSTON.—Late advices denote a more steady feeling in the market, with some orders. The sudden closing of navigation is stated as the cause. Prices are firmer.

The season of the Schuylkill Canal closed on the 20th inst. The total number of tons transported in—

1866	1,296,356 15
1865	1,022,740 09
Increase 1866	273,616 06

Amount of Coal shipped over the following roads since the closing of the fiscal year:

	1865 Week ending Dec. 23.	1865 Total.	1866 Week ending Dec. 25.	1866 Total.	Dec.
Ph. & R. RR	....	127,841	25,352	62,166	65,675
L. I. RR.	21,483	54,843	9,892	22,100	34,743
		182,684		84,266	
Dec.		84,266			
		98,418			

Reports of the Coal Traffic for the Last Week

as compared with those of the corresponding week last year, are as follows:

	1865. WEEK.	1865. TOTAL.	1866. WEEK.	1866. TOTAL.	INC. & DEC
Phil. & Reading R.R.	....	2,802,393	.....	3,425,330	622,938
Schuylkill Canal	....	1,012,740	3,701	1,296,356	273,616
Lehigh Val. R. R.	....	1,402,277	.....	1,730,475	328,198
Lehigh Canal	....	888,784	.....	1,066,307	177,523
Del & Hudson	....	762,612	.....	1,302,894	540,282
Scranton North	8,884	249,287	6,523	414,664	165,377
Scranton South	21,537	704,169	20,327	1,045,279	341,110
Penn'a. Coal Co. Rail	.....	558,304	12,512	511,449	d 46,854
by Canal	.....	.....	.....	.....	.....
Wyoming North	.....	28,957	.....	106,370	77,413
Wyoming South	.....	329,506	.....	463,642	134,136
Shamokin	6,882	439,927	8,719	537,853	97,926
Trevorton	10,065	26,860	92	49,828	22,968
Short Mountain	1,595	73,799	2,170	110,708	36,909
Franklin	.....	57,269	.....	32,747	24,522
Broad Top	.....	308,135	3,080	259,309	d 48,826
	39,903	9,675,019	58,724	12353 201	.....
	.....	.....	.....	9,675,019	.....
Increase	.....	.....	.....	2,678,182	.....
Decrease	.....	.....	.....	.....	.....

Lehigh and Mahanoy Coal Trade, 1866.

For week ending December 15th, 1866.

NAMES OF SHIPPERS.	WEEK.	TOTAL.
Trenton Coal Co	.....	30 19
Mount Etna	.....	43 04
Mahanoy Coal Co	.....	.....
Delano Colliery	.....	156 09
Glenoon Coal Co	.....	.....
Rathburn, Stearns & Co	.....	169 11
E. S. Silliman	2,232 16	4,511 02
McNeal Coal & Iron Co	106 03	204 13
Knickerbocker Coal Co	.....	46 14
Thomas Coal Co	.....	90 03
Williams & Herring	.....	60 08
Other shippers	.....	10 02
Total	2,338 19	5,332 05
Corresponding week last year	664 13	4,041 13
Increase	1,674 06	1,290 12
Decrease		

Schuylkill Coal Trade by Railroad and Canal,

For the week ending Thursday, December 20, 1866:

	RAILROAD.	CANAL.
From St. Clair	8,326	.....
Port Carbon	5,570	1,472 05
Pottsville	68	.....
Schuylkill Haven	7,099	2,228 16
Auburn	1,268	.....
Port Clinton	3,021	.....
Total for week	25,352	3,701 01
Previously this year	36,814	1,292,655 14
Total this year	61,166	1,296,356 15
To same time last year	.....	1,022,740 04
Increase	.....	273,616 06

Cumberland Coal Trade.

By Railroad.

Statement of Coal shipments over the Baltimore and Ohio Railroad for the week ending Dec. 15th:

	Tons.
From Eckhart R. R	
Blaen-Avon Company	155 12
Spruce Hill	540 11
From Cumberland and Pa. R. R.	
Consolidation Company	2 375 04
Borden Mining do	1,066 10
American do	745 07
Clifton do	... ..
New Hope do	31 09
	5,884 13
From George's Creek via. Piedmont.	Tons.
George's Creek Coal and Iron Company	1,553 15
American Company	... ..
Central do	1,250 00
Atlantic do	728 00
Piedmont do	914 16
Swanton do	717 17
Barton do	996 03
George's Creek Mining Co	1,180 10
Franklin do	2,251 00
Potomac do	179 04
Hampshire do	2,194 06
Total	11,966 11

GAS COAL.	Tons.
From Mines West of Piedmont	1,260 00
Transportation since 1st of January.	Tons. Cwt.
From Companies by Eckhart R. R.	47,390 09
From do C & P. R. R.	137,018 14
From do via. Piedmont	562,856 19
From West of Piedmont, Gas Coal	53,470 00
Total	800,736 02

Lehigh Coal Trade, for Week Ending Saturday December 15.

OPERATORS.	RAILROADS. Week.	RAILROADS. Total.	CANAL. Week.	Total.
Ashburton Coal Company	....	....	....	163
Audenreid	....	....	....	13,527
Baltimore Coal Company	668	1,216	....	13,195
Buck Mountain	125	603	....	24,485
Central Coal Company	....	....	....	....
Coleraine	231	280	....	25,572
Council Ridge	1,191	2,658	....	....
Coxe Bro. & Co	....	....	....	7,266
Connery, John	41	66	....	....
Coal Run Coal Company	....	....	....	....
Cross Creek	310	445	....	....
Delano	....	151	....	5,305
East Sugar Loaf	....	484	....	....
Ebervale Coal Company	938	1,582	....	[c] 27,758
Franklin Coal Company	222	254	....	[c] 12,552
Ger Pa Coal Company	11	460	....	25,282
Glendon Coal Company	....	....	....	6,784
Germania Company	152	283	....	10,715
Hazleton	117	376	....	76,483
Harleigh	....	228	....	16,729
Highland Coal Company	....	....	....	....
Hillman & Son	....	....	51	51
Honey Brook Coal Company	557	1,686	....	....
Hull & Co., Thomas	....	....	....	32,327
Jeddo (G. B. M. & Co.)	669	1,813	....	14,250
Knickerbocker	....	40	....	55,597
Laubach, J. & Co	....	....	....	9,766
Lehigh Zinc Company	....	....	....	1,475
Lehigh & Susquehannah	....	....	....	....
Lehigh Coal & Navigation Co.	....	....	....	11,842
Mahanoy	....	....	....	399,619
Mount Pleasant	253	253	....	....
Meadow, B. (D. W.)	58	58	....	6,475
McNeal Company	168	314	....	21,270
Meyers, H.	....	....	....	....
Mount Etna Coal Company	....	58	....	4,327
Morris and Essex Mutual	....	....	....	803
New Boston C. Co	....	....	....	....
East " "	94	135	....	....
New Port C. Co	....	....	....	1,524
New York & Lehigh	25	1,069	....	....
New Jersey	204	419	....	5,501
North Mahanoy	....	....	....	8,585
Packer, Skeer & Co	....	....	....	84,303
Patterson, W. T.	....	....	....	....
Parish & Thomas	665	1,161	....	405
Primrose Coal	....	....	....	1,342
Rathburn, Stearns & Co	21	190	....	....
Reber, J. B. & Co	....	....	....	....
Sharpe, Weiss & Co	....	....	....	29,804
Stout Coal Company	288	506	....	18,821
Spring Mountain	74	124	....	6,356
Silliman	2,150	4,085	....	....
Shamokin Coal Company	....	....	....	....
Thomas Coal Co	123	162	....	3,085
Trenton Coal Company	20	30	....	379
Union	45	117	....	3,962
Wilkesbarre	261	490	....	45,686
Woodside Company	....	....	....	....
Warrior Run	....	55	....	6,310
Wyoming	25	190	....	1,552
Walter Bro. & Co	....	....	....	12,750
Williams & Herring	....	60	....	....
Other shippers	75	95	....	13,405
Total	9,892	22,090	....	1,066,307
Corresponding week last year	21,482	54,843	....	888,784
Increase	....	....	....	177,523
Decrease	11,590	32,753	....	

Prices of Coal by the Cargo.

At New York, Dec 22, 1866

Schuylkill Red Ash by Boat Load	$7 00@	$7 50
" Chestnut, " "	4 50	5 25
" White Ash Lump	6 25	6 75
" Steamboat	6 25	6 75
" Broken	6 25	7 00
" Egg	6 52	7 00
" Stove	6 50	7 00
" Chestnut	4 75	5 50
Lehigh White Ash Lump	6 50	7 00
" Broken	6 50	....
" Egg	6 25	....
" Stove	6 75	....
" Chestnut	5 50	....
Western Virginia Gas Coal	10 00	....
Westmoreland Gas Coal	10 00	....
Blossburg & Fall Creek	7 25	7 40

At Philadelphia, Dec. 22, 1866.

Schuylkill Red Ash Prepared	$5 50@	$6 00
" Chestnut	4 00	.. ..
" White Ash Lump and Steamboat	5 00	.. ..
" Broken	5 00	.. ..
" Egg and Stove	5 25	.. ..
" Chestnut	4 00	.. ..
Locust Mt. Lump, and Steamboat	5 25	.. ..
" Broken	5 25	.. ..
" Prepared	5 50	.. ..
" Chestnut	4 25	.. ..
Lorberry Coal	5 75	.. ..
Shamokin	5 75	.. ..
Franklin, (Lykens Valley)	6 25	.. ..
Broad Top	5 50	.. ..

Scranton Coal at Elizabethport, Dec. 22, 1866.

Lump	$4 50@	— —
Steamer	5 25	— —
Grate	5 50	— —
Egg	5 50	— —
Stove	6 00	— —
Chestnut	4 25	— —

Prices for Pittston Coal at New York, Dec. 22, 1866.

Lump, per ton of 2240 lbs	$6 25	.. ..
Steamer, " " "	6 35	.. ..
Grate " " "	6 40	.. ..
Egg " " "	6 50	.. ..
Stove " " "	6 75	.. ..
Chesnut " " "	5 50	.. ..

Lehigh Coal at Elizabethport, Dec. 22, 1866.

Lump	6 75@	$7 00
Steamboat and Broken	6 50	— —
Egg	6 50	— —
Chestnut	5 50	6 00
Stove	....	7 00

George's Creek and Cumberland Coal.

Run of mine, f. o. b. at Locust Point	$5 75@	.. ..
At Georgetown	5 50	.. ..

At Baltimore, Dec. 22, 1866.

Wilkesbarre & Pittston W. A., wholesale	$7 50@	$7 75
" " " retail	8 25	8 50
Lykens Valley & Sunbury R. A., wholesale	7 50	7 75
" " " retail	8 25	8 50

At San Francisco.

(From the California Gazette.)

Australian	$9 00@	9 50
Do Wallsend	9 50	.. ..
Pittston, do	.. ..	.. ..
Lehigh	.. ..	.. ..
Cumberland, cks	24 00	.. ..
do bulk	22 00	.. ..
Scranton	17 00	18 00
Liverpool	.. ..	.. ..
Scotch	.. ..	.. ..
West Hartly	12 00	.. ..
Vancouver Island	11 00	.. ..
Bellingham Bay	10 00	.. ..
California	6 00	8 00

Prices of Foreign Coals.

[REPORTED FOR THE JOURNAL OF MINING.]

BY H. L. PARMELE & BRO., 32 Pine street, N. Y.

Duty $1.25 per ton.

Liverpool Gas Caking	$11 00
" " Cannel	16 00
" House "	18 00
" " Orrel	16 00

Per ton 2240 lbs.

PRICES FROM YARD:

Liverpool Orrell, screened	20 00
" Cannel, "	22 00

per ton 2000 lbs. delivered.

Prices of Provincial Coals.

[REPORTED FOR THE JOURNAL OF MINING.]

BY LOUIS J. BELLONI, JR., 43 Pine street, N. Y.

Duty $1.25 per ton.

Block House	(on board)	$1 75 gold.
Gownie	"	1 75 "
Lingan	"	1 75 "
Sidney	"	2 28 "
Pictou	"	2 25 "
Glace Bay	"	1 75 "
International Co.'s	"	1 75 "
Slack Coal	"	75 "

Coal Freights.

From Port Richmond, Philadelphia.

Albany (& towing)	$1 70@ — —	Newburg	$1 68@ — —
Alexandria	1 55 — —	Newburyport	2 40 — —
Appanoag	2 00 — —	New Haven	2 00 — —
Aspinwall	7 00 — —	New London	2 00 — —
Bangor	2 00 — —	Newport	2 30 — —
Bath	3 00 — —	Newport, R. I.	1 90 — —
Baker's Landing	— — — —	New York	1 60 — —
Bedford	— — — —	Norfolk	1 40 — —
Boston	.. 2 75	Norwalk	2 15 — —
"Light draft vessels	3 50 — —	Norwich	2 32 — —
Bridgeport	1 80 — —	Pawtucket, & tow'g	2 25 — —
Bristol	1 90 — —	Petersburg	2 00 — —
Calais	3 50 — —	Philadelphia	18 — —
Cambridgeport	3 50 — —	Portland	3 20 — —
Catskill (& tow)	2 00 — —	Portsmouth, N. H.	2 50 — —
Charleston, S. C.	2 00 — —	Providence	2 10 — —
Charlestown	3 00 — —	Provincetown	1 90 — —
Chelsea	2 50 — —	Poughkeepsie, & t'g	1 60 — —
Commercial Point	3 00 — —	Port Chester	1 60 — —
Davenport'and dis.	3 25 — —	Plymouth	2 25 — —
Delaware City	— 80 — —	Richmond	2 00 — —
Digdton	2 00 — —	Rockland	2 30 — —
East Greenwich	2 10 — —	Roxbury	3 35 — —
Elizabethport	1 50 — —	Saugus	2 50 — —
Fall River	2 25 — —	Sing Sing	1 60 — —
Fort Monroe	1 60 — —	St. Johns (in gold)	1 50 — —
Fredericksburg	2 25 — —	Salem	3 25 — —
Georgetown	1 50 — —	Savannah, Ga	2 00 — —
Gloucester	3 15 — —	Stonington	2 25 — —
Lynn and dis	3 00 — —	Washington, D. C.	1 55 — —
Milton	3 75 — —	West Point & tow	1 70 — —
Malden	2 50 — —	Wilmington	1 60 — —
Mobile	5 10 — —	Williamsburg	2 87 — —
Neponsett	3 20 — —	Winterport	2 00 — —
New Bedford	2 30 — —		

From Elizabethport.

Albany	$1 00@ — —	New London	1 30@ — —
Boston	2 00 — —	Newport	1 50 — —
Bridgeport	1 20 — —	New York	70 — —
Fall River	1 50 — —	Norwalk	1 20 — —
Hartford	1 75 — —	Norwich	1 40 — —
Hudson	1 00 — —	Pawtucket	1 75 — —
Lynn	— — — —	Portland	2 00 — —
Middletown	1 50 — —	Portsmouth	2 15 — —
New Bedford	1 50 — —	Providence	1 50 — —
Newburyport	2 25 — —	Salem	2 00 — —
New Haven	1 20 — —	Taunton	1 40 — —

From Baltimore.

To Philadelphia	$2 50@ — —	Boston	3 75@ — —
New York	3 25 — —		
do by Canal	2 75 — —		

From Georgetown or Alexandria.

To Philadelphia	$2 50 — —	Boston 3 50 3 75
New York	3 25 3 50	

By Railroad.

Transportation from Schuylkill Haven to Pt. Richmond	$2 25
Freight from Pt. Richmond to New York	1 60
Total	$3 85

From Port Carbon 8 cents per ton more.

Freights on Coal to Elizabethport.

L. V. R. R. from Mauch Chunk to Easton	$1 15
C. R. R. of N. J., Easton to Elizabethport	1 70
	2 85
Shipping expenses at Elizabethport	25
Total	$3 10

Provincial Freights.

Sydney to N. Y.	$4 50
Lingan	4 50
Cow Bay	4 50

Big Glace Bay	4 50
Little "	4 25

Foreign Freights.

New Castle and Ports on Tyne	19£*m* keel.
Liverpool	15s.@ 20s

WEEKLY COAL TRADE CIRCULAR.

NEW YORK, Dec. 21, 1866.

Trade at wholesale is over for the season. Prices have advanced from 50c. to $1 per ton from the extreme low quotations current two weeks since. The weather is cold and the canals are all closed. There will be no more auction sales this year. The Scranton Company will probably have their next sale early in January. At retail there is quite an active demand. The Pittston Company have advanced their prices 25c. per ton at retail. A further advance may soon be looked for, as coal *cannot* keep low if everything else remains *high*. The cause of the present low quotations is the large over-production for the current year, and, as the mines have now stopped operation, will not be resumed till the business can be carried on to cover cost at least, which will soon be realized by the operation of the inevitable laws of supply and demand. I. A. & Co.

COPPER ORES.

NEW YORK, Dec. 21, 1866.

25 @ 50 per cent	$4 87½@5 00	
20 @ 25 "	4 50	4 87½
15 @ 20 "	4 25	4 50
10 @ 15 "	3 75	4 25

Small sales of Lake Ingot at 26 @ 26½ cash. Considerable parcels of ore sold, during the past week at the above quotations. Manufactures supplies of Refined Ingot and Cake inadequate for extensive orders. Market sympathizes with all other classes of produce, and must improve with any increase of general business.

BOSTON STOCK MARKET.

BOSTON, Dec. 21, 1866.

A telegram received this day quotes mining stocks as follows :

Canada	50c.	Minnesota	—
Copper Falls	51¼	Quincey	39
Franklin	40	Cary Improvement	11¾
Hancock	11¾	Water Power	31
Huron	36	Central	—
Isle Royal	—		

SALES AT STOCK EXCHANGE, DEC. 20.

800 shs Water P'r	b.30 32	100 shs Isle Royal	8
900 do do	31¾	100 do do	b.60 8¼
150 do do	b.60 32½	5 do Pewabic	27¼
75 do do	31⅝	220 do Quincy]	40
50 do Cary Imp	12¾	150 do Star	1¾
200 do do	b.30 12½	SECOND CALL.	
100 do Bay State	10	100 do Water Power	31½
300 do Cop. Falls	b.30 51	100 do do	32
100 do Hanover	1¾		

SAN FRANCISCO STOCK MARKET.
Latest by Telegraph.

SAN FRANCISCO, Dec. 19.

Name.	Bid per foot.	Name.	Bid per foot.
Gould & Curry	690	Crown Point	1150
Savage	20.0	Yellow Jacket	1225
Chollar-Potasi	225	Belcher	122
Ophir	185	Alpha	..
Hale and Norcross	2600	Imperial per share	136
Cal. Steam Navigation Co	64	Cal. State Telegraph Co	..

NEW YORK METAL MARKET.

(CORRECTED WEEKLY.)

COPPER—Detroit, ₱ lb., cash	.. 27	.. 27½
Portage Lake	.. 26½	.. 27
Baltimore	.. 26½	.. ..
Pig Chili	.. ..	.. ..
Bolts	.. 42	.. ..
Braziers	.. 43	.. ..
Sheathing	.. 40	.. ..
Yellow metal	.. 30	.. ..
IRON—Pig.....No. 1 Scotch, ₱ ton	40 00	52 00
No. 1 American	50 00	51 00
No. 2 "	55 00	65 00
No. 2 Charcoal	46 00	47 00
Bar.....Swedish, assorted sizes	.. ..	170 00
Amer. and Eng refined	115 00	.. ..
" " common	105 00	.. ..
Rails, American at Works	85 00	90 00
" English (Gold)	52 00	54 00
Horse shoe iron	140 00	150 00
Rods 5-8@3-16	120 00	175 00
Band	145 50	.. ..
Nail rods	9¾	10¾
Hoops	150 00	212 00
Sheets, Russian, ₱ lb	21	23
" English "	.. 6¼	.. 8
" American "	.. ..	.. ..
Boiler Plates, English	.. ..	.. ..
" American	.. ..	.. ..
STEEL.....English, cast, (2d & 1st q) ₱ lb	.. 18½	.. 24
" Spring, " "	.. 11½	.. 13
" Blister, " "	.. 12½	.. 20
" Machinery, "	.. 14	.. 16
" German, (2d & 1st q)	.. 15½	.. 17½
American Blister, Blk Dia'd	.. 11½	.. 17
" Cast, Tool, "	.. 19	.. ..
" Spring, "	.. 12	.. 15
" Machinery, "	.. 15	.. ..
" American German,	.. 13	.. 14
LEAD.....Galena	.. ..	.. ..
German (Gold) refined	6 75	.. ..
Spanish "	6 75	.. ..
English "	6 75	.. ..
Bar (nett)	.. ..	10 00
Pipe and sheet "	.. ..	10 25
TIN.....Banca, gold	.. ..	22½
Straits	21¾	22
English	..	21½
TIN PLATES.....IC charcoal, ₱ box (Gold)	9 25	.. ..
IC Coke "	7 25	8 75
Charcoal Terne "	9 25	.. ..
Coke Terne "	6 75	7 00
QUICKSILVER	85	90
SPELTER.....Lehigh, per lb., currency	8¾	9
Foreign " gold	6¼	6½
ZINC.....Sheet	.. 13	.. 13½
SOLDER.....No. 1	.. 24	.. ..
No. 2	.. 22	.. ..

SPECIAL NOTICES.

☞ Professor H. Dussauce, chemist, United States Commissioner to the Paris Exposition, wishes to communicate with exhibitors, as he desires, in connection with his position, obtaining authentic information relative to the exhibition of articles which any may contemplate to make at Paris. The information will be used in the report he will make upon the subject of American industry. He can be addressed at New Lebanon, N. Y.

☞ The attention of such of our readers as desire to make Christmas presents to the young folks, is particularly directed to James O'Kane's list of holiday books, advertised in our columns. Of "Hans Brinker" the *Atlantic Monthly* says : "It is a charming domestic story of some three hundred and fifty pages, which is addressed, indeed, to young people, but which may be read with pleasure and profit by their elders. The scene is laid in Holland, a land deserving to be better known than it is ; and the writer evinces a knowledge of the country, and an acquaintance with the spirit and habits of its stout, independent, estimable people, which must have been gathered not from books alone, but from living sources. Graphically, too, is the quaint picture sketched, and with a pleasant touch of humor. * * * The book is fresh and flavorous in tone, and speaks to the fancy of children. * * * There is no formal moral, obtruding itself in set phrase. The lessons inculcated, elevated in tone, are in the action of the story and the feelings and aspirations of the actors. * * *" The "Irvington Stories" are thus spoken of by the New York *Evening Post* : "An unusually attractive holiday book for the young is published by James O'Kane, of this city, under the title, 'The Irvington Stories, by M. E. Bolge.' It consists of eight well-written tales on various subjects, elegantly illustrated by Darley. The tone of the work is eminently patriotic and American, and it must deeply interest the readers."

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men and Others.

The following claims have recently been issued, from the United States Patent Office :

60,219.—FURNACE.—James T. McDougall, San Francisco, Cal.:

I claim, 1st, A smelting hearth of peculiar construction, A, B, the sloping portion, A, inclining towards C, its lower portion forming the dam-wall or ridge, B, running across the hearth of the furnace from side to side, substantially as described and for the purposes set forth.

2d, The half oval-shaped refining hearth, C, conforming in shape to the smelting hearth where they join, the sole of which has a slight inclination from the flue, D, toward B, where it has a lower level than the smelting-hearth, A, for the purposes specified and set forth.

3d, The manner of feeding the fluxes and ores to the furnace by the use of the hoppers, V, V, and grooved bars or rods, W, W, substantially as described.

4th, The devices for feeding the fuel to the furnace and depriving it of its moisture by the use of the cylinder, N, and conducting pipe, e, (or their equivalents), as herein specified and shown.

5th, The arrangement of the door-hearth, H, H, for discharging the metal and slag, substantially as described.

6th, The manner of binding the said furnace with bands of iron secured to the casing of the furnace and keyed below it, when arranged substantially as described and for the purpose set forth.

7th, The concave rockers, R, R, R, and convex rails, S, S, S, with chimney shield, L, and lever sockets, d, d.

8th, The within, described improvements, whether employed singly or in combination in smelting furnaces, substantially as and for the purposes herein specified.

60,248.—METHOD OF PREPARING PEAT AND OTHER SUBSTANCES FOR FUEL.—Louis S. Robbins, New York City :

I claim saturating peat, coal-dust, or other substances, either separately or in combination, with hot oleaginous vapors, substantially as herein described.

I also claim the drying and saturating the peat, coal-dust, or other substances, either separately or in combination at one and the same operation, substantially as described.

I also claim the method herein-described of drying the peat, coal-dust, or other substances by the use of heated air, substantially as herein described.

60,290.—REFINING PETROLEUM.—Henry C. Van Tine, Pittsburg, Pa.:

I claim the refining of petroleum or carbon oil, without the aid of artificial heat, by means of the series of operations herein-before described, consisting substantially of the use of sulphuric acid, sulphate of zinc, sugar of lead, and bichromate of potash, or their equivalents, for separating the heavy carbons and impurities, the neutralizing of the acid and washing with water, combined with the subsequent exposure of the oil thus heated in shallow pans to the action of the atmosphere, substantially in the manner and for the purposes herein before described.

60,322.—MACHINE FOR ROLLING METAL.—Hugh Bains, Manchester, England :

I claim, 1st, The combination of the hollow perforated rollers, C², with the reversible gearing, H², I², when constructed, arranged, and connected together, so as to operate substantially in the manner described and for the purposes set forth.

2d, In combination with the above I claim the movable table 7, arranged and operating substantially as and for the purpose specified.

60,340.—MODE OF FASTENING AND UNFASTENING DROP DOORS IN COAL CARS.—William Burt, Marquette, Mich.:

I claim the combination of the lever, B, shaft, L, cams, c, attached to the said shafts, L, pins, P, with the drop doors, a, when the same are constructed and arranged in the manner and for the purpose set forth.

60,365.—ROTARY PUMP AND ENGINE.—Dexter D. Hardy, assignor to Thomas H. Foulds, Cincinnati, Ohio :

I claim the rotary pistons, B, B', whose peripheries are formed by quarter circles, a, a', and b, b', of different diameters, connected by suitable sides, c, in the described combination with the two central inner tongues, D, D', of the case, A, as and for the purpose specified.

60,366.—ROTARY PUMP AND ENGINE.—Dexter D. Hardy and J. J. Morris, Cincinnati, Ohio :

We claim, 1st, Constructing the rotary pistons, B, B', of arcs of circles, a, a', b, b', of different diameters connected by epicycloid faces, C, in the described combination with the elastic gibs, G, as for the purpose specified.

2d, We claim as arranged with the above combination the set-screws, J, for preventing lateral play of the shafts and pistons, as set forth.

60,420.—WELDING OF IRON AND STEEL.—John P. Price, assignor to Frank H. Hipple, Philadelphia, Pa.:

I claim the welding of iron or steel by the aid of kryolite, as set forth.

60,440.—CUPOLA FURNACE.—Charles Truesdale, assignor to Wm. Resor & Co., Cincinnati, Ohio :

I claim the provision in a cupola or blast furnace of the several tiers of tuyeres in an ascending series with diminished issues, substantially as set forth.

Special Scientific Brevities.

☞ M. Foucault recently communicated to the French Academy of Sciences the fact that the sun may be viewed through a lens covered with silver leaf ; the sun's disc, shorn of beams, can thus be clearly seen. Subsequently M. Melscius made a useful application of Foucault's discovery. Having been injured while making an experiment in the laboratory, his eyes were painfully affected by light. In this condition he had recourse to spectacles with black glasses, such as are used by engine drivers ; over these he put green glasses, which answered pretty well ; but on further experiment he found the best method was to use pale blue goggles covered with silver or gold film, and these he recommends to all persons troubled with weak eyes.

☞ A supersaturated solution of left-handed double tartrate of soda and ammonia does not crystallize in contact with a fragment of the same salt right-handed, and *vice versa*. From an inactive supersaturated solution of double racemate of soda and ammonia, a fragment of right-handed crystal determines only the precipitation of right-handed crystals ; whilst a portion of the same liquid in contact with a left-handed crystal produces a deposit of the left-handed salt. This supplies a simple means of separating at will from the double racemate of soda and ammonia either of its two constituent salts.—*London Chemical News.*

☞ There is good reason to believe, from certain experiments recently made, that any kind of water may be freed, not only from the impurities it contains in suspension, but also those it holds in solution, and may thus be made fit for drinking by adding to it a very small amount of solution of permanganate of potash, and then filtering it through a layer of magnetic oxide of iron and carbon a few inches thick. The required mixture may be obtained by heating in a close vessel red oligist ore and a small quantity of sawdust.

☞ A German journal publishes a neat process, which may be thus briefly stated. Into the vinegar to be tested, put a small quantity of starch, boil the solution down to its original measure, then drop into it a very minute portion of iodine. If the vinegar is pure the usual blue tint will be shown, but if it be adulterated with sulphuric acid no such coloration will take place, because the action of this acid upon starch converts it into glucose or grape sugar.

☞ Sword blades resembling those of Damascus are made at Soligen, in Germany. A bigot is first formed of alternate fine bars of iron and steel. It is drawn out, doubled and twisted several times, and then formed into a ribbon. Two such ribbons are welded together, enclosing between them a thin blade of the best cutting English steel. After polishing it, it is dipped in diluted sulphuric acid to give it a pattern.

☞ Two drachms camphor, half drachm of pure saltpetre, half drachm of muriate of ammonia, and two ounces of proof spirits, in a glass tube or narrow phial, will make a pretty sure weather guide. In dry weather the solution will remain clear. On the approach of change, minute stars will rise up in the liquid ; while stormy weather will be indicated by the very disturbed condition of the chemical combination.

☞ During the late meeting of the British Association at Nottingham, at one of the *soirees*, specimens of meat preserved in paraffine were exhibited. The process consists in the immersion of fresh meat in paraffine at a temperature of 210° F., long enough to effect a concentration of the juices of the meat and to expel the air. Afterward a coating of paraffine is applied to exclude the air and prevent decomposition.

☞ Mr. Payne recently brought from China to Europe specimens of the vegetable soap used throughout that Empire. It is in the form of pods produced by two leguminous plants. Before using these pods for washing, the Chinese first cut away the greater part of the epicarp, and then rub the wet linen with the pod thus denuded ; after which it is enough to rinse the linen in fresh linen.

☞ The mean ratio of strength in cold-blast iron being 1 000, hot-blast iron was represented by 1,024·8 ; and the mean ratio of power to sustain impact being in cold-blast as 1,000, it was 1,226·3 in hot blast iron. These were the results of the inquiry established by the British Association.

☞ In electro-plating it is said, on French authority, the addition of a small quantity of bi-sulphide of carbon to the silver and potassium bath; causes the deposit to take place with perfect evenness, and results in the production of a highly brilliant surface on the object plated.

Mineral and other On-dits.

☞ The Sand Tunnel, on the Pittsburg and Connellsville railroad, is at last cut through. Its total length is 4,700 feet, being 1,000 feet more than the long tunnel on the Pennsylvania Central Railway through the Alleghanies, between Altoona and Cresson. It is intended for a double track, and is twenty-two feet wide by nineteen feet in height.

☞ A recent copy of the British *Colonist*, (Vancouver I.) says ; It seems that the fire at Bellingham Bay coal mines was never really extinguished. The fire has burst out of the chamber into which it was confined, and the Revenue cutter Lincoln has been despatched to the scene of conflagration with hose. The danger is said to be more serious than at any previous time.

☞ Considerable excitement exists over oil discoveries in the township of Bennington, in Shiawassee county, Mich. The indications of oil pronounced by experienced men are good. All the farms in the immediate vicinity are leased, and extensive preparations are being made to sink a number of wells at once.

☞ It is announced that surveys are now being made on the English Channel, between Dover and Calais, in con-

nection with the projected tunnel between England and France. A Dover paper states that the engineers engaged in the work have a steam tug specially fitted with scientific apparatus, and it can be seen any fine day anchored in Dover Straits.

☞ The Quebec *Chronicle* states that a gentleman who has, during the last seven years, been exploring the country on the North shore of the St. Lawrence, has discovered a vein of coal extending over a large district, as also copper, plumbago, steel and iron mines, with petroleum springs.

All Sorts.

☞ Sixty years ago there was hardly a craft larger than an Indian canoe on the great Western lakes. In 1811 the lake trade amounted to $65,000,000. In 1851 to $300,000,000, in 1861 to $550,000,000, and it bids fair in 1871 to reach the enormous sum of $,000,000,000.

☞ The iron obtained by heating in the nitrate of hydrogen has a silver white color, is extraordinary ductile, and may be easily cut with a knife. It dissolves in acids without leaving any residue, and is certainly the purest form of iron yet known.

☞ A coarse, ill-natured fellow died one day, and his friends assembled at his funeral, but no one had a good word to say about the deceased. Even at the grave all were silent. At length a good-hearted German, as he turned to go home, said, "Vell, he vas a goot schmoker,"

☞ A remarkable-looking person astonished the *habitues* of the Italian Opera, in Paris, the other evening. He had on a cravat completely covered with diamonds. The nobby gentleman, as might be expected, turned out not to be of the upper-ten, but the keeper of a *cafe*.

☞ One of the saddest things about human nature is, that a man may guide others in the path of life without walking in it himself, that he may be a pilot and yet a cast-away.

☞ A married monster says he once had a most delightful dream, in which he imagined he had an angel by his side, and on waking up found it was only his wife.

☞ From the latest reports it would seem that something like two million people have died of famine on the shores of the Bay of Bengal.

☞ A Buffalo man claims to have discovered that leather and India rubber for belting can be replaced by sheet iron.

☞ A distillery internal revenue case in New York is entered in court—"The United States vs. Two Large Worms.

☞ The tobacco-chewer is said to be like a goose in a Dutch oven—always on the *spit*.

☞ Beauty is the woman you love, whatever she may seem to others.

The Next Deluge.

A French work recently published, maintains that every 10,000 years the waters of the sea pass from one pole to the other, submerging and overwhelming in their passage the earth and all its inhabitants. According to the author of this theory, M. Paul de Jouvencel, the last of those deluges occurred 4,500 years ago; the next one is due in 6,000 years more. M. Jouvencel recounts this great cosmical drama with the vigor and pictorial effect of an eye-witness. Six thousand years—sixty centuries—then, only, are left to us wherein to do our whole world's work, and to complete and perfect that civilization which has yet hardly dawned on the greater number of mankind! Sixty old men may touch hands across the interval between the present moment and the last hour of the world as it exists; then all will be finished, all consumed, all will disappear! The sea for 10,500 years in its immeasurable depths will crush out our history and leave nothing of it at all but a few fossils!—so, at least, says M. Jouvencel.

Blue Slags.

The blue color of certain slags is generally attributed to the presence of titanic acid. In a paper recently read by M. C. Mene, before the Academy of Sciences, the author gives nineteen analyses, in which he shows that titanic acid is not always the cause of the blue color; it being the coloring matter when the slags are vitreous, but not when they are compact. The author's process for detecting titanic acid is as follows:—Pulverise and porphyrise 10 to 15 grammes of slag, and treat it with cold dilute sulphuric acid (1 to 10), so as to avoid all heating. The mass soon becomes gelatinous; add plenty of water, and agitate with a glass rod. Filter, wash the precipitate, and boil the filtrate for a quarter of an hour, when the liquid will gradually become opaque, as if hydrate of alumina were suspended in it, and a white precipitate gradually forms in the vessel. Filter, re-dissolve in sulphuric acid, wash, and again boil, and upon the resulting precipitate the characteristic reactions of titanic acid may be obtained. In the discussion on this paper, M. Chevreul considered that the blue coloration might sometimes be due to the presence of a particular oxide of iron.—*Mech. Magazine.*

Remains of a Gigantic Dinosaur.

Professor E. D. Cope recently exhibited at the Academy of Natural Sciences, Philadelphia, the remains of a gigantic extinct Dinosaur from the Cretaceous Green Sand of New Jersey. The bones were portions of the under jaw, with teeth, portions of the scapular arch, including supposed clavicles, two humeri, left femur, right tibia and fibula, with numerous phalanges, lumbar, sacral and caudal vertebræ, and numerous other elements in a fragmentary condition. In size this creature equalled the Megalosaurus (70 feet in length), and must have been one of the most formidable of the rapacious terrestial vetebrates. The remains were found by the workmen under J. C. Voorhees, Superintendent of the West Jersey Marl Company, about two miles south of Barnesboro', just under the stratum of green sand (now used as manure), and about twenty feet from the surface.

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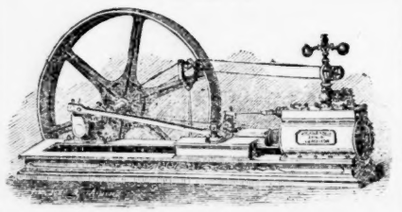
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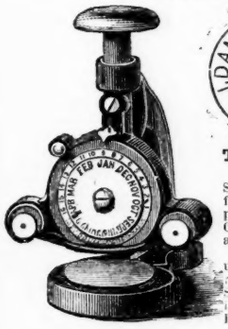

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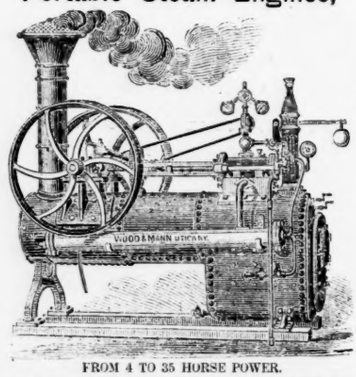

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